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ABSTRACT

A study examined the reading skills of minority and bilingual auto mechanics and office workers in the Los Angeles metropolitan area in order to determine the relationship between the reading skills tested in competency-based exams given in high schools and those required for on-the-job performance. The first phase of the study included both linguistic analyses of materials and task analysis of the jobs under study. During the second phase of the project, researchers conducted on-site interviews with and administered high school competency exams to 80 auto mechanics and 92 office workers who are from minority groups. The variance in on-the-job reading performance that can be accounted for by the reading skills on competency tests turned out to be 39 percent for auto mechanics and 25 percent for office workers. While the basic skills measured in competency-based exams were found to be more relevant to advanced jobs in both fields than to entry positions, they appeared to be good predictors of ability to accomplish job-related reading tasks, with general comprehension skills, such as finding a main idea and following a sequence of events to be transferable to reading at work. (MN)

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RELATING THE READING SKILLS OF MINORITY-BILINGUAL PERSONNEL TO THE READING DEMANDS OF WORK

(NIE -G- 0085)

by

CONCEPCION M. VALADEZ and JOHN D. McNIEL

UNIVERSITY OF CALIFORNIA, LOS ANGELES

FINAL REPORT

Submitted to

Dr. Blanca Rosa Rodríguez

National Institute of Education

Reading and Language Studies

U.S. DEPARTMENT OF EDUCATION
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CE036799

July, 1983

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ABSTRACT

This study investigates the reading skills of minority-bilingual workers in the context of two major non-academic employment fields--auto-mechanics and office work. The research looks at the relationship between the reading skills tested in competency based exams given in high schools and those required for on-the-job performance. The subjects were 80 minority-bilingual auto mechanics and 92 persons employed as office workers. This research was conducted in the Los Angeles metro politan area.

Summary of questions posed in the study:

1. The variance in on-the-job reading performance which can be accounted for by the reading skills on competency tests was found to be 39% for auto mechanics and 25% for office workers.

2. The basic skills measured in competency based exams were found to be more relevant to advanced jobs in both fields than to entry positions.

3. Duration of employment was found to have no relationship to high school competency exams nor to job reading tasks where auto mechanics were concerned. A mechanic may have satisfactory performance on the job for many years without learning to read in the conventional manner (as evaluated by high school competency exams).

4. The reading materials for the advance positions were found to be different from those used by employees in entry level jobs. In the auto mechanics field advanced employment requires reading for management. Those persons read economic reports, business forms and correspondence. Further, employees in advanced positions often had to interpret model changes and technical reports involving schematics and diagrams. On the other hand, entry level jobs seemed to require minimal reading ability, as traditionally taught and tested in school. Entry level positions required the reading of job orders, parts numbers, oil grades, pressure levels and other numerical and graphic materials.

In the business offices, great differences were also found in the reading materials of the advanced positions and those of entry level. Additionally, persons in advanced level positions were found to read a large range of materials, e.g., The Wall Street Journal, professional magazines, corporation correspondence. The entry level persons, however, generally read a limited variety of materials if they were in large shops (more than 13 employees) and a larger variety of materials if the shop had 2 to 12 office workers. The entry level people read material that needed to be typed (although comprehension was not found to be a requirement in some typing pools), and document titles for filing. Many entry level workers sorted forms according to a limited set of skills, e.g., letters and numbers. The study found that the reference books most frequently used by entry level persons were dictionaries and telephone books.

5. The skills measured by competency based exams were found to be good predictors of ability to read job reading tasks. General comprehension skills such as finding a main idea and following a sequence of events appear to be transferable to reading at work.

6. Persons who did not have the ability to read work-related materials used a variety of ways to circumvent the use of the materials. The most common way was to ask fellow workers what to do. In the auto mechanics field non-English readers in some shops had manuals written in Spanish. As has been pointed out, above, persons in entry level positions generally were found to refer to the manuals for obtaining specific information given in numbers, e.g., parts' numbers, specifications, and recommended sequences for an operation. The information was available in list form or in diagrams. hence, the non-English speaker could get the information sought by "reading" an English manual in his own language.

Among the office workers there always seemed to be hierarchy of supervisors. If a fellow, peer worker could not help the person with the question, the next most common strategy was to ask the supervisor. In all the cases observed, only the supervisors used the reference manuals. Among minority-bilingual office workers ther were frequent instance of sharing the problem-solving among the lower workers and those with advanced positions.

1. INTRODUCTION

This study relates the reading competencies required for high school graduation to the reading demands of entry and advanced positons within clerical and automotive fields. Information was sought regarding the match between competency exams and requirements of the workplace, the job coping strategies of non-readers, and the special reading skills necessary for reading job-related materials.

The first phase of the study included both linguistic analyses of materials and task analyses of the jobs under study: clerk typists, senior typists; beginning auto mechanics, advanced auto mechanics. Subjects for this phase were those holding such jobs and who are members of minority/bilingual groups. A stratified sample of large and small work sites in the Los Angeles area was used. The second phase consisted of on site interviews and the administration of measures of both job-related criteria (supervisor's ratings and job reading tasks) and high school competency exams. Subjects are 80 minority workers and their supervisors in the area of auto mechanics and 92 persons employed as office workers.

This report presents, first, the technical summary of the study on literacy skills of auto-mechanics; the second section of the report contains the summary on the literacy skills research among office workers.

The final section synthesizes the findings and delineates areas for further research suggested by this study.

2. COMPETENCY BASED READING SKILLS AND THE READING DEMANDS OF MINORITY-BILINGUAL AUTO MECHANICS

Our study of the relation between the reading competencies for high school graduation and the reading demands of auto mechanics followed this sequence of events:

1) Determining the job reading tasks of minority auto mechanics at entry and advanced levels.

2) Administering both a range of items measuring competency-based reading skills and job reading tasks to minority high school students enrolled in auto shop courses. This testing was for the purpose of determining the difficulty, discrimination, and association of items and tasks.

3) Administering selected competency-based test items and job reading tasks to minority-bilingual auto mechanics in low and high paying positions.

2.1 Determining Job Reading Tasks

Interview Schedule

Fifty auto mechanics, the majority of whom were bilinguals, were interviewed at their work sites in order to obtain information regarding the reading demands of their jobs. The following format was used in conducting the interview:

Company name _____, Number of employees _____,

Experience of the mechanic _____ years,

Full or part time worker.

1) What have you read on your job? Today? Yesterday? This week?

2) How often do you read it? Daily? Weekly? Monthly?

3) Show me what you have read.

4) What information were you looking for?

5) What is your most crucial reading task?

Supervisors of the mechanics were also interviewed and asked these questions:

1) What do your auto mechanics have to read on the job? What type of reading do they do?

2) How often do they need to read manuals, catalogs, service notices, etc.?

3) Which of the things you mentioned do you think are more important? Would you rank, in order of importance, those types of reading that you have mentioned?

A number of all day observations were subsequently made in selected shops to compare verify that what mechanics and their supervisors reported was read was what mechanics actually read on the job. Further, non-obtrusive measures, such as smudge marks on particular sections of repair manuals confirmed the frequency with which certain information was sought.

Work Sites

All interviews were conducted in the Los Angeles metropolitan area. The work sites were diverse in terms of size and function. Some shops operated on the basis of specialization. That is, the shop itself offered repair of a specialized nature--brakes, carburetors, or a particular make of car. Specialization was also found in some general service shops where different mechanics were assigned duties to work on different parts of the car, not making general repairs. Other shops, characterized as general service departments, offered both a wide range of repairs and expected mechanics to be able to make any of these repairs.

The reading demands were much higher in the general service shops and in those shops where the mechanic had a range of responsibilities instead of only a speciality to perform within the automotive field.

Time Spent in Reading

Consistent with previous studies, it was not uncommon to find mechanics in speciality shops spending less than one hour a week in on-the-job reading.[1] Mechanics in low paying positions where they were making routine repairs in a narrow speciality reported little or no time spent in reading on the job. Usually such mechanics only had to read repair order forms or selected pages of an automotive repair manual, parts lists, or a table of specifications for the speciality. However, mechanics in general shops and with a range of duties sometimes reported as much as ten hours a week reading job related material. If they were in a supervising position, for example, they were required to read shop manuals, schematics, complex diagrams, dealers catalogs, price lists, forms, letters, memos and service bulletins advising of necessary changes in particular equipment.

The reading material commonly found in all garages was the auto repair manual. The most widely used of these manuals were those published by the Chilton Book Company and Mitchell's Manuals, Inc. These manuals provided information concerning the repair of many cars and trucks covering models from various years. Service garages that specialized in one make of car and truck--particularly those of foreign origin--had manuals written especially for the vehicles for which they were responsible.

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[1]Moe, Alden J. etal. The Literacy Requirements of an Automotive Mechanic on the Job and in a Vocational Training Program. Department of Education Purdue University, 1980

Description of Automotive Manuals

Sticht has suggested a classification scheme for categorizing the content of job material.[1] Content analysis of the most widely used manuals showed that they included information within each of the following six categories:

1) Tables of Content and Indexes--content designating the location of information within the publication.

2) Standards and Specifications--content setting forth tolerances to which task procedures or the completed product must conform.

3) Identification and Physical Description--content symbolically representing an object by an identifying code (stock number, nomenclature) and itemizing its distinguishing attributes.

4) Procedural Directions--content presenting a step-by-step description of how to carry out a specific job activity. Essential elements are equipment, materials and how they are to be used with presentation organized in a sequential fashion.

5) Procedural Checkpoints--content presenting a key word or highly summarized version of what should be done rather than how it should be done. The mechanic is assumed to know how to carry out the steps once reminded by the check points.

6) Functional Description--content presenting an operating (cause and effect, dependency relationships) descriptive of some physical system or subsystem.

Readability estimates of these materials according to the Dale-Chall Formula, the Fry Readability Graph, and the Forcast Readability Formula showed ranges in difficulty from tenth through twelfth grade levels with an average of eleventh grade. It should be clear however that the readability formulas were not very useful in assessing reading difficulty of the most widely used sections of the manuals--tables of specifications, indexes, and pnysical descriptions. Further, the information sought by

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[1]Sticht, T.G. (Ed), Reading for Working: A Functional Literary Anthology. Human Resources Research Organization, Alexandria, Virginia, 1975.

mechanics demanded mostly literal comprehension, some interpretation (especially of charts and diagrams) and little evaluation. Interpretation of complex schematics and wiring diagrams was required of only advanced auto mechanics. Due to the technical nature of the material, mechanics who are familiar with the special vocabularly and work activity were able to gain information from the manuals even if they could not read at the assessed difficulty level. We found mechanics who could not read English, but who could obtain the information they frequently wanted from the materials.

Style features of the automotive publications included the use of diagrams, charts, and illustrations which might be used with or without accompanying written explanation. A technical writing style predominated. Sentence and paragraph structures emphasized the following of directions and the interpretation of graphs and diagrams. The use of pictorial elements eliminated the need for most modifiers. Articles and sometimes other function words were omitted; hence the style could be considered telegraphic:

> "Remove torsion bar installer and remover and stall on other end of torsion bar crossmember and repeat step 2. Remove tool".

Directions for assembly and disassembly began with action verbs indicating what must be done. The sentence elements in automotive manuals consisted of subject, verb, object, predicate object and indirect object. The subject being implicit; the object being a specific part or tool to which the action is directed.

Two combinations of person and mode were found: Second person imperative for instruction and third person indicative for description. Cautions were also written in the third person, giving information about

a condition which must exist prior to and during the performance of a task.

Most data in technical manuals were presented as graphs, charts, tolerance tables, parts and tool lists. Two commonly used charts were flow charts and tables. Flow charts are schematic representations showing flow of a process and sequencing of individual or simulataneous activity. Tolerance tables provide information concerning the continued serviceability of a part. A listing of the part was given along with minimum and maximum specifications. The use of a parts list required familiarity with the parts name or visual concept of the part itself. In most cases, the manual provided an exploded view of the part and the part's name. Using this view, limited English speakers could find the parts number necessary for ordering a replacement.

It is important to note that auto mechanics read in order to do rather than to learn. Reading to do involves searching for and locating information to perform a certain job. In contrast, reading to learn requires learning from text and remembering what has been read for some future use. While an occasional mechanic spoke of taking a manual home in order to learn, most of them stated that they merely looked up information needed to immediately perform a task, either by looking for a specification that applied to the work being done or for a direction to be followed. Most of the job reading tasks were repetitive; performed daily, weekly and monthly. In nearly all instances, the mechanic knew what information he needed and already had the knowledge required for retrieving the information.

The types of information most commonly sought by all mechanics were specifications, parts data, and procedures for carrying out a task. One

could see, however, that the manual took on more importance as model changes occurred. For example, newer regulations such as those concerning emissions and exhaust systems seemed to increase reading for functional descriptions.

2.2 Job Reading Tasks

From the data about the kinds of information mechanics get from reading and with copies of the printed material itself, job reading tasks were constructed. These tasks represented both the most frequently mentioned reading tasks and the kinds of information (content) found in the materials. Although far more difficult questions could be posed as tests of job reading ability, we wanted tests that would be suitable for the widest number of work situations and those of different levels of experience. We also wanted items that were passage dependent. Our interviews had shown that with respect to information such as procedural directions and functional descriptions, many mechanics answered the questions, not in accordance with the text, but from their own experiential background.

The following seven items were based on the job reading tasks:

TASK No 1.

Question: According to the order, what weight oil should be used in changing oil?

VALVOLINE MOTOR OIL

BUD HAND
Sports Car Service

PENNZOIL

Name Sh. T. Date 10/10

Car Make MGT Mileage 40,050 Lic. XJ20

Type Service change oil

Attention Customer

MOTOR OIL ____ Qts. ____ SAE ____

LUBRICATION:

UNDER THE HOOD

- ☐ Door Hinges
- ☐ Locks - Belts
- ☐ Brake Fluid
- ☐ Hood Hinges, Lacings
- ☐ Starter and Generator
- ☐ Distributor Cam
- ☐ Wick under Rotor
- ☐ Linkage Joints under Hood
- ☐ Fan
- ☐ Water Pump
- ☐ Pedal Shaft & Connection
- ☐ Steering Gear

ON THE LIFT

- ☐ Steering Connections
- ☐ King Pins
- ☐ Ind. Wheel Susp. Joints
- ☐ Shackles, Bolts, Springs
- ☐ U. J. Spline

OIL FILTER: Type ____

TRANSMISSION: ☒ Change ☐ Add ____ Pt. or Lbs. SAE 90 Type ____

AUTO TRANS: ☐ Change ☐ Add ____ Pt. or Lbs. SAE ____ Type ____

DIFFERENTIAL: ☐ Change ☐ Add ____ Pt. or Lbs. SAE ____ Type ____

BATTERY: ☐ Good Condition ☐ Fair Condition ☐ Needs New Battery

OTHER ____

Castrol

TOTAL

TAX

AMT. DUE

By ____

X2

TASK No 2.

Question: On what page would you find information for aligning a propeller shaft for a 1971 Oldsmobile?

Section 7

REAR AXLES

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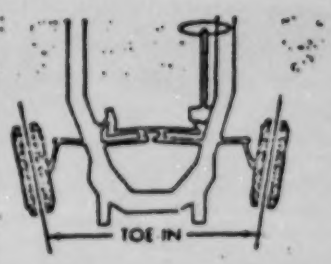
Universal Joints 7-133

TASK No 3.

Question: What is the tolerance or range allowable for Toe-In in the wheel alignment of a Vega?

1973 WHEEL ALIGNMENT SPECIFICATIONS

R – Right F – Front Rr – Rear L – Left Man – Man Steering Pwr – Power Steering	Caster (Degrees)	Camber (Degrees)	Toe-In (Inches)
GENERAL MOTORS (Cont.)			
Monte Carlo	5±1/2 ①	L +1±1/2 R+1/2±1/2	1/8 to 1/4
Camaro (Exc. Z-28)	0±1/2 ①	L +1±1/2 R+3/4±1/2	1/8 to 1/4
Z-28	−1±1/2 ①	L +1±1/2 R+3/4±1/2	1/8 to 1/4
Nova	+1/2±1/2 ①	+1/4±1/2	1/8 to 1/4
Vega	−3/4±1/2 ①	+1/4±1/2	3/16 to 5/16
Corvette	Man +1±1/2 ① Pwr+2 1/2±1/2 ①	F +3/4±1/2 Rr−7/8±1/4	F 1/4±1/16 Rr 1/16±1/32



TASK No 4.

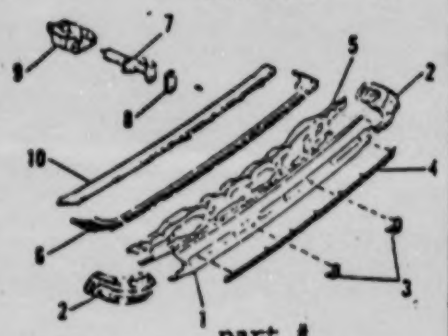
The following picture show the parts of Rear Bumper of Toyota Corolla. Read the parts list carefully, and answer the questions.

COROLLA TE31, 37, 38 & 51

REAR BUMPER

EXC WAGON

R&I Bumper Assy .8
O/H incl R&I 1.3
Refinish
Face Bar .8
Stone Deflector .7



		part #		
1 Face Bar	Chrome	52151-19335	1.3	82.73
	Painted To 5-78	52151-19325	1.3	82.37
	Frm 5-78	52151-19326	1.3	77.87
2 Extension, Side				
TE31, 7, 8	R	52106-19035	.4	22.00
	L	52107-19065	.4	23.04
TE 51	R	52106-19055	.4	21.80
	L	52107-19085	.4	21.80
3 Guard, Center		52405-19055	.3	14.15
4 Pad, Guard		52055-19015		21.64
5 Reinf, Impact		52023-12010		72.46
6 Filler, Bar				
Thru 10-75		52505-12010	.3	40.31
From 11-75	exc TE31 Spl	52505-12020	.3	43.26
		52501-12020	.3	39.69
7 Absorber, Impact				
Exc	R	52650-12010	#	54.99
	L	52660-12010	#	49.46
TE 51 - Liftback	R	52650-12020	#	49.46
	L	52660-12020	#	49.46
# Incl in Bumper O/H				
8 Plate, Absorber Mtg		52825-12010		4.23
9 Support, Mtg				
Exc	R	52015-12020		9.35
	L	52016-12020		9.35
TE 51 - Liftback	R	52015-12030		9.99
	L	52016-12030		11.10
10 Deflector, Stone				
Exc		58401-12011	.3	30.19
TE 51 - Liftback		59201-12010	.5	25.21

Q1.

What is the name of the part shown in figure 8?

_____

Q2.

What is the part number for this part?

_____

TASK No 5.

Read the following paragraphs, and answer the questions.

1979 Ford and Mercury station wagons may develop a condition where the fuel gauge always registers full, even when empty. This problem is caused by the left rear seat belt anchor grounding the fuel gauge wire. To repair, proceed as follows:

Remove lower cushion from rear seat. Inspect seat belt anchor for trapped fuel gauge wire. Loosen seat belt anchor bolt and free trapped wire. Tighten seat belt anchor bolt to 32 ft. lbs.

Fix damaged wire and tape it to the floor pan away from the seat belt anchor. Replace rear seat cushion. Check gauge operation. If gauge fails to register accurately, make further test of fuel gauge.

Question: What would you do if the fuel gauge still registers inaccurately after checking the gauge wire?

1) Remove lower cushion from rear seat.

2) Tighten seat belt anchor bolt to more than 32 ft. lbs.

3) Make further test of fuel gauge.

TASK No 6.

Question: Find distributor TVS valve and the line marked D. Trace this vaccuum line to the next unit. What is the next unit?

1) Throttle body

2) Dist. vac. adv. sol.

3) Air pump div. valve

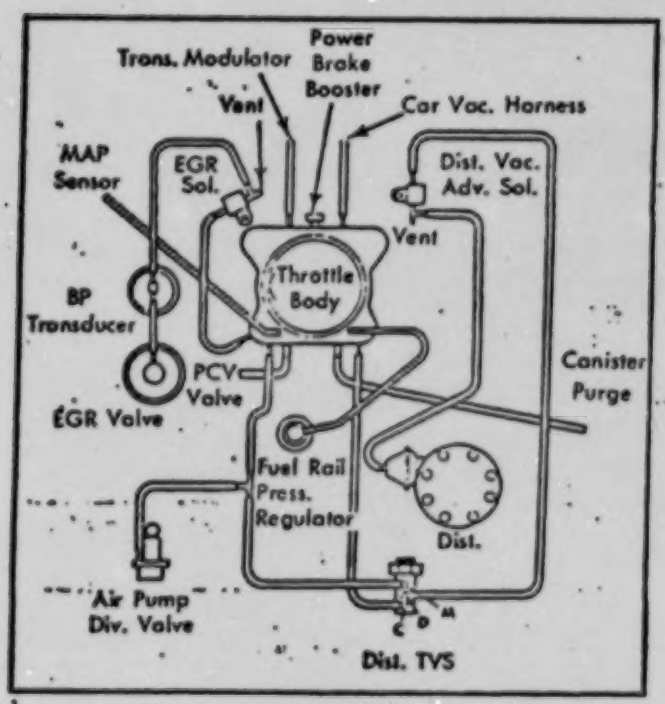


Fig. 23 425"; Fuel Injection; Calif. (Brougham, DeVille)

TASK No 7.

Read the following paragraphs, and answer the question.

> Some 1979 Chrysler Newport, New Yorker and Dodge St. Regis models may experience low oil pressure indications, Chrysler Corp. points out that this may not be caused by a malfunction in the engine oiling system.
>
> Low oil pressure conditions must first be verified by performing standard oil pressure test procedures. If oil pressure reading is found to meet actual normal specifications, then problem may lie in the oil pressure sending unit.
>
> Should this type of situation be encountered, replace the oil pressure sending unit with a revised replacement unit (No. 2427237)

Question: According to the article, what malfunction may cause a Dodge St. Regis, '79 to show low oil pressure?

1. Malfunction in the engine oiling system.
2. Malfuntion in the oil pressure sending unit.
3. Malfunction in the test instrument of oil pressure

Task 1 represents the kind of reading most commonly performed by beginners and low paid mechanics. It is a job work order indicating what must be done. As a content type category, it is classified as procedural check point.

Task 2 is representative of tables, content and indexes designating the location of information within a publication. It measures whether or not the mechanic can find information in tables.

Task 3 represents a task that calls for reading standards and specifications-the ability to obtain the tolerance which must be met.

Task 4 measures the mechanic's ability to engage in the frequent task of using a parts list. It is classified as an instance of identification and physical description.

Task 5 is a measure of the ability to read procedural directions. It calls for accurate reading of specific steps to be carried out.

Task 6 is a measure of ability to read a simple diagram; a description of a functional unit.

Task 7 is best classified as a functional description task. It indicates an operating cause and effect relationship.

2.3 Competency Tests and Job Reading Tasks

Competency Tests

Two types of tests are being used to measure minimal competency in reading: (1) tests that measure school skills traditionally taught in reading comprehension-e.g., finding the main idea of a passage and drawing inferences from text. The reading material to which school skills are to be applied is expository and literary, similar to the passages found in classroom textbooks. (2) tests that measure "real

life skills" designed to indicate whether one can read the tasks thought to be essential for adult participation in society.[1] Examples are measuring the ability to read safety warnings, forms and applications and common reference sources.

As part of our strategy for determining the relation between competency based tests and job reading tasks, we administered the previously mentioned job reading tasks to 49 students in three high schools. Of these students 18 were bilingual minority and 38 were enrolled in auto shop courses. These same students had just taken a comprehensive competency based reading test that included both traditional school skills and life skills. There was, for example, the traditional tests of (a) finding the main idea and supporting details in content such as articles, newspapers and books of a general nature, (b) finding information by consulting common reference tools maps, graphs, tables and directions, and (c) finding information by consulting a dictionary and book's table of content and index.

Tests of life skills included tests of (a) comprehending warnings stipulated in content such as medicinal and household product safety warnings, (b) comprehending what is required in order to fill out application forms, (c) comprehending requirements set forth in governmental publications-driver's handbooks, voter registration and rental agreements, and (d) comprehending procedures specified in operating manuals for machines and appliances, assembly instructions for household articles and cookbooks.

These tests were scored on a pass-non pass bases.

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[1]Airasian, P.W. et al. Minimal Competency Testing. Educational Technology Publications, Englewood Cliffs, New Jersey, 1979.

2.4 Performance on Competency Based and Job Reading Tasks

Results of performance on both the competency tests and the job reading tasks are indicated in Table 1, showing the number of successful and unsuccessful students on both types of tests. Successful performance on the job reading tasks was indicated by correctly responding to each of the seven items.

Table 2.1

Performance of Students on Job Reading Tasks and Competency Tests

	Students Passing Job Reading Tasks	Students Failing Job Reading Tasks
Students Passing Competency Exam N = 27	22	5
Students Failing Competency Exam N = 11	1	10

Students who failed the competency exam had difficulty in reading job related material in some categories of content. Those who could not pass the compentency test were unlikely to be able (a) to interpret a simple diagram (45% could do this task), (b) to determine cause and effect from a functional description (only 9% could do this task). However, most students who failed the competency tests were able to read the following job tasks:

1) identify a part using (a) a parts description (89% could do this), (b) a parts number (82% could do this)

2) obtain a specification using a table (100% could do this).

3) Follow directions in reading step by step procedures (92%)

4) Interpret a work order (64%)

Those who passed the competency test could perform nearly all of the job reading tasks. They could for instance read even the most difficult items-interpreting a diagram and determining cause and effect from a functional diagram (84% and 81% successful responses respectively).

These data suggest that many of the competency based skills are associated with the job reading tasks of auto mechanics-e.g., the use of an index, the deriving of specifications from a table, the interpretation of a parts list, and the following of step by step procedures.

Students who are able to derive main ideas from articles, guides and general interest books are also able to perform well on the more difficult job reading tasks-e.g., determining cause and effect relationships.

Thus far our findings indicated that successful achievement on competency exams was associated with ability to read job tasks. However, we did not know whether mechanics who could read job tasks could also perform well on competency tests. School instruction in traditional skills, for example, might better prepare students for reading on the job (transfer) than job experience in learning to read specific materials prepares one to read other types of materials. Whether those mechanics who learned to read on the job for their special needs would also be able to read the real life and traditional school material remained to be seen. For the next phase of the study, to the end, five tests were selected to be administered to minority mechanics at their work sites. Three of these tests were job reading tasks--interpreting a diagram, reading a work order, and finding a cause and effect relationship from a

functional description. Two of the tests were competency tests--one measuring the real life skill of understanding written safety warnings and the other a traditional skill of determining a main idea from a passage.

SAMPLE

Our sample of sites from which minority-bilingual mechanics were to be chosen was of two kinds: large shops employing one hundred or more auto mechanics and small shops with five or fewer mechanics. The small shops were randomly chosen from locations found in the yellow pages of the telephone directory listing automobile repair and service in the east Los Angeles area--an area known to have predominantly minority bilingual mechanics. The large shops were selected because of the number of mechanics employed--the maintenance shops of the county of Los Anglees, the Yellow Cab Co., Rapid Transit District, Santa Monica and Los Angeles City School Districts, the U.S. Post Office, Sears Roebuck Co., Hertz Rental Service, and Midas Repair Shops. These shops represented a range in public and private agencies.

The mechanics in both large and small shops were minority-bilingual persons. Forty-six of these persons were working in lower paying jobs and thirty-four in higher paying jobs (a lower paying job was one below the medium pay $17,000 annually, a higher paying job was one paying above the medium). Of those in small shops, 88% were in the lower income category, while only 5% of those in large shop were in this category.

PROCEDURES

Employers were advised of the nature of the study and were requested to allow their minority-bilingual mechanics to be interviewed. The mechanics were interrupted at their work and asked if they would be willing to read and respond to reading tasks for the purpose of determining the relevancy of these tasks to their own work.

The tests were completed during a single visit. Data regarding years experience as an automobile mechanic and approximate income were also collected.

2.5 Results

The correlation between scores earned on the competency based tests and the job reading tasks was .62. Approximately 38% of the variance on the job reading tasks can be accounted for by competency based test. As indicated in Table 2, performance on the competency test (3 items) but not on the job reading tasks (3 items) was better in large shops.

Table 2.2

Performance on Job Reading Tasks and Reading Competency Test by Size of Shop

	Mean Score of Job Reading Tests	Mean Score of Reading Competency Tests
Small Shop (N = 40)	1.80 (SD = 1.70)	1.18 (SD = 1.25)
Large Shop (N = 40)	2.08 (SD = 1.05)	1.98 (SD = 1.17)
	NS	p .01

Nearly 50% of the mechanics in small shops read the functional tasks correctly but only 22% were able to read the traditional task of finding a main idea in a passage. In the large shops 70% read the functional task correctly and 60% found the main idea in a passage. Although there was no significant difference between workers in large and small shops on the overall reading of Job reading tasks, those in large shops were slightly better at interpreting work orders and determining cause and effect from functional descriptions.

Table 3 indicates that years experience as a mechanic correlates with ability to read competency tests. Mechanics in small shops averaged 12 years experience; those in large shops 13 years.

Table 2.3
Mean Scores on Job Reading Tasks and Reading Competency Tests by Experience

	Job Reading Tasks	Reading Competency Tests
Less Experienced Mechanics (N = 50)	1.70 (SD = 1.14)	1.48 (SD = 1.26)
More Experienced Mechanics (N = 30)	2.40 (SD = .85)	1.67 (SD = 1.32)
	p .01	NS

Income was associated with both the ability to read job reading tasks and competency tests (Table 4). The average income for mechanics in small shops was $12,000 per year; in large shops $17,000.

Only 15 percent of low income mechanics answered all parts of the competency test correctly, whereas 53% of high income did so. High

income mechanics were equally successful on the functional--life skill--and the traditional--finding the main idea--components of the competency test (71% correct in each component); lower income mechanics were better in the functional component (39%) than the traditional component (20%).

Table 2.4
Mean Scores on Job Reading Tasks and Reading Competency Tests by Income

	Job Reading Tasks	Reading Competency Tests
Low Income (N = 46)	1.48 (SD = 1.07)	.98 (SD = 1.22)
High Income (N = 34)	2.56 (SD = .79	2.56 (SD = .90)
	p .001	p .001

2.6 Conclusions

Competency based examinations were found to be related to the job reading tasks of automobile mechanics from Los Angeles area shops. Approximately 38% of the variance in on the job reading performance could be accounted for by the reading skills required for high school graduation. However, the basic skills measured by competency exams were more relevant to higher paying jobs than to low paying ones. The data suggested mechanics could hold low paying jobs without the reading competencies demanded by high school graduation.

Years experience was found associated with ability to read job tasks but not with ability to pass reading competency tests. A job could provide opportunity to learn the limited reading skills associated

with it. However, on the job reading did not seem to contribute to general reading ability nor to the ability to read other job related materials.

High paid mechanics read both job tasks and competency tests better than lower paid mechanics. Lower paid mechanics did not read either the functional nor the traditional dimensions of competency tests very well. Indeed, there appeared to be evidence that lower paid positions do not require such competencies. The relation of reading to income was confounded by employment tests. Higher paid mechanics were employed more frequently in public and quasi-public agencies such as the maintenance shops of the county, the Rapid Transit District and the school systems. Lower paid employees were employed by private companies such as the Yellow Cab Company and by small independent garages. Mechanics with limited English to obtain jobs in the higher paying shops because they cannot pass the written examinations. This is so even if the passing of a written exam is no warrant that one is a good mechanic. Public agencies such as the U.S. Post Office had found a need to establish performance exams because so many poor mechanics were hired on the bases of the written exam. Similarly, we found highly rated mechanics who were denied promotion because they could not pass required written exams.

The materials read by highly paid mechanics differed from that read by lower paid mechanics in both number and kind. The lower paid mechanics usually read only repair order forms, tables of specifications, and parts lists. Higher paid mechanics read a variety of forms, service bulletins, diagrams, letters, many parts of the service manuals, and catalogs. Further, higher paid mechanics were more frequently required to read content characterized as functional descriptive. Although

competency based exams included most of the prerequistes for reading in high paying jobs, there were some omissions: the reading of diagrams, the interpretation of instrument scales, the reading of decimal fractions and mixed fractions.

The technical vocabulary and relevant concepts essential for employment in higher paid positions might be better acquired in automotive training programs or in apprentice opportunities than through instruction in reading. Individual experience with auto mechanics and familiarity with specialized information contribute to both the reading of job related material and performance as a mechanic. It should be clear that the present study related the skills measured in competency exams to job reading tasks, not to performance as mechanics. We found many non-reading mechanics who were viewed as excellent employees and who acquired their skill and knowledge through apprenticeships with master mechanics or through training in a foreign country.

This study found many mechanics with limited English coping with their job tasks by circumventing reading. They might ask fellow workers who are more fluent in both languages to translate when it is necessary to communicate with a supervisor or client. They also may rely on pictures in identifying parts and nomenclature. Frequently, they read diagrams, tables, charts and drawings by bringing their own language and experience to bear in gaining the information desired. A few auto parts companies such as Champion issued catalogs in Spanish and there was one publisher of a general repair manual, Leniel-Clewson, who had a manual written in several languages. Many of the employers and employees we interviewed wanted more materials written in Spanish.

Any conclusion drawn regarding reading and the automotive trade must take into account the range of job opportunities--general apprentices and journeymen who maintain and repair vehicles, locating engine trouble and making adjustment and replacements; speciality mechanics who may specialize in diagnosis and tune up, electrical repair, transmission, front end and steering, and the like; supervisors who are usually expert mechanics responsible for selecting and routing repair work, supervising and instructing other mechanics, and inspecting finished repairs.

Although vocational leaders recommend that specialization be undertaken only after successful experience as a journeyman mechanic, we found a trend in the opposite direction. Many beginning mechanics were already in a specialization. They occupied specialist positions knowing only the duties of the speciality. The reading demands of such specialities were minimal.

Concurrent with the trend to specialization and reduced reading requirements was the increased complexity of cars. New systems, such as automotive electronics applied to the ignition and braking systems and computerized engine controls were beyond the diagnostic ability of the average mechanic. Hence there appears to be a need for more highly trained and literate mechanics. However, it remains to be seen whether the industry will demand increased reading skills or whether other ways will be found for dealing with the complex systems. Diagnostic machines, videodiscs showing diagnostic and repair procedures, and substitution rather than repair of units may minimize the need for reading.

A final conclusion is that there are many minority-bilingual persons with very limited reading skills who work as auto mechanics; however, minority members in higher paying positions within the field have the

reading competencies measured by competency examinations. This correlation between reading competency and income is not necessarily a causal relationship since the larger employees commonly use a screening test as part of their hiring procedure.

3. COMPETENCY BASED LITERACY SKILLS AND THE LITERACY DEMANDS OF MINORITY-BILINGUAL CLERK-TYPISTS

The study of the relationship between the literacy competencies for high school graduation and literacy demands of clerk-typists followed this sequence.

1) Determining the on-the-job litercy tasks of minority and non-minority clerk-typists in a variety of offices.

2) Development of a literacy test which included both minimum competency-based skills and job specific literacy skills.

3) Administering the competency-based and job-task literacy test to 80 clerk-typists.

4) Analysis of test results. Comparison of literacy kills competencies across offices.

3.1 Selection of Literacy Skills Needed by Clerk-Typists

The search for the literacy skills to investigate followed a three step process: 1) interviews, 2) observatons, and 3) material analysis.

Twenty workers and ten supervisors were interviewed to determine the type of reading and the reading skills required in a variety of offices.

The interviews were guided by questionnaires (Charts 3.1, 3.2) in order to have reliability across research team members and in order to elicit the information we sought. A form was also used for documenting the responses (Chart 3.3).

CHART 3.1 EMPLOYEE INTERVIEW QUESTIONNAIRE

1. WHAT HAVE YOU READ ON YOUR JOB TODAY? (If the answer is "Nothing" ask, "What did you read yesterday?" (or last week, or last month). If an answer is given, continue to the next question.

2. Can you show me what you read?

3. Ask, "What information were you looking for?"

4. (Or) "What questions were you looking for?"

5. May we (I) have a copy of the page(s) you read?

Thank you very much for your help.

CHART 3.2 EMPLOYER - SUPERVISOR QUESTIONNAIRE

1. What do your employees have to read on their job? What types of reading to they do?

2. How often do they need to read these types of references, files, manuals, etc.?

3. Which of the things you have mentioned do you think are more important? Would you rank, in order of importance, those types of readings that you have mentioned?

Thank you very much for your assistance.

X1CMV/N

CHART 3.3 FORM FOR DOCUMENTING RESPONSES

COMPANY _____

No. of workers in the office _____

Experience of the Typist (1) Full-time or Part-time

Auto mechanic (2) _____
year(s) mon.

1. What have you read on your job? (today/yesterday/this week)

	Daily	Weekly	Monthly
1.			
2.			
3.			
4.			

2. What information were you seeking?

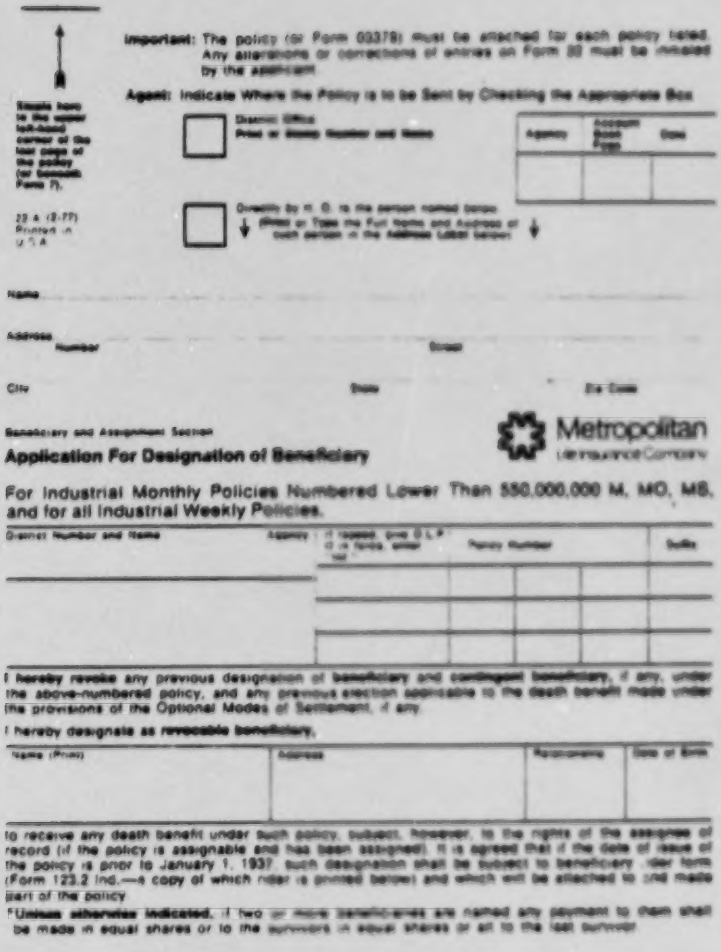
	Comments	Analysis of Task
1.		
2.		
3.		
4.		

3. What are the most crucial tasks?

XICMV/N

The following are sample documents collected during the interview phase (Charts 4, 5, 6).

CHART 4



Important: The policy (or Form 03378) must be attached for each policy listed. Any alterations or corrections of entries on Form 22 must be initialed by the applicant.

Agent: Indicate Where the Policy is to be Sent by Checking the Appropriate Box

Name

Address

City

Beneficiary and Assignment Section

Application For Designation of Beneficiary

Metropolitan Life Insurance Company

For Industrial Monthly Policies Numbered Lower Than 550,000,000 M, MO, MS, and for all Industrial Weekly Policies.

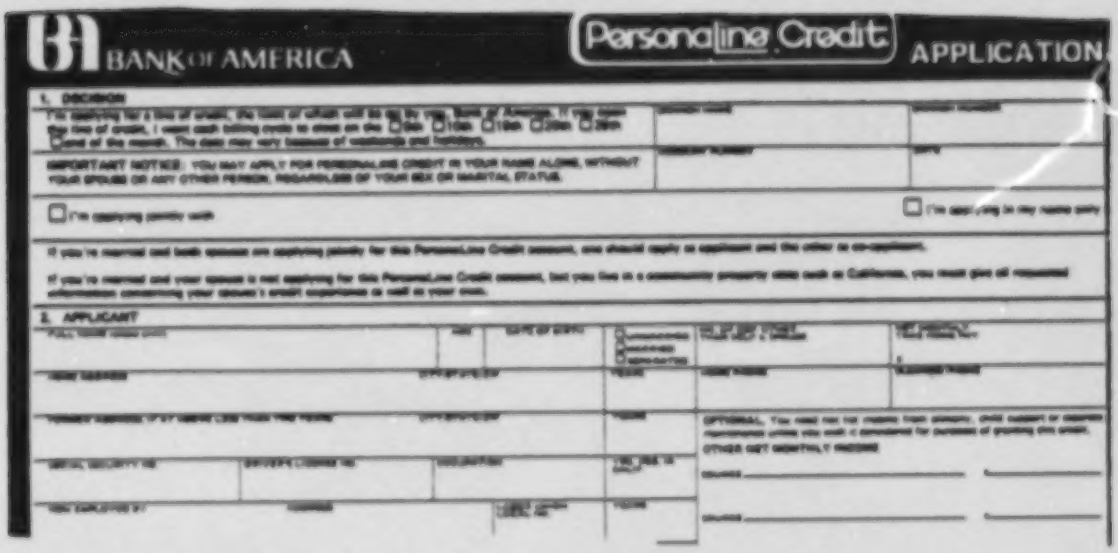
I hereby revoke any previous designation of beneficiary and contingent beneficiary, if any, under the above-numbered policy, and any previous election applicable to the death benefit made under the provisions of the Optional Modes of Settlement, if any.

I hereby designate as revocable beneficiary,

to receive any death benefit under such policy, subject, however, to the rights of the assignee of record (if the policy is assignable and has been assigned). It is agreed that if the date of issue of the policy is prior to January 1, 1937, such designation shall be subject to beneficiary rider form (Form 123.2 Ind.—a copy of which rider is printed below) and which will be attached to and made part of the policy.

*Unless otherwise indicated, if two or more beneficiaries are named any payment to them shall be made in equal shares or to the survivors in equal shares or all to the last survivor.

CHART 5



BANK OF AMERICA

Personaline Credit APPLICATION

1. DECISION

IMPORTANT NOTICE: YOU MAY APPLY FOR PERSONALINE CREDIT IN YOUR NAME ALONE, WITHOUT YOUR SPOUSE OR ANY OTHER PERSON, REGARDLESS OF YOUR SEX OR MARITAL STATUS.

I'm applying jointly with

I'm applying in my name only

If you're married and both spouses are applying jointly for this PersonaLine Credit account, one should apply as applicant and the other as co-applicant.

If you're married and your spouse is not applying for this PersonaLine Credit account, but you live in a community property state such as California, you must give all requested information concerning your spouse's credit experience as well as your own.

2. APPLICANT

OPTIONAL. You need not list income from alimony, child support or separate maintenance unless you wish it considered for purposes of granting this credit.

OTHER NET MONTHLY INCOME

Source

Amount

Source

Amount

CHART 6

Economic Outlook 1980

Bank of America Global Report

October 1979

Accelerating worldwide inflation and decreasing economic growth mark the world economy as we enter the 1980s.

Inflation is being sustained by a world liquidity glut caused by excessive money supply growth in nearly every nation during the past few years. Since the breakdown of the Bretton Woods System, the world has experienced double-digit growth rates in the global money supply each year. The lack of control over official international liquidity creation and the concomitant weakening of the balance-of-payments constraint have contributed importantly to this lessening of monetary discipline. It is therefore not surprising that global inflation has averaged 12 percent annually since 1974, and the outlook for the 1980s is not encouraging.

Ten office personnel were selected for 8 hour observations. This activity was included to verify the self reporting done during the interviews. A discrepancy was found with use of reference manuals. The only persons using the business manuals were the supervisors, where the interview appeared to have the manuals used by entry level workers as well. The only reference books used by the lower level workers were dictionaires and telephone books. The following is a summary of the of literacy activities as identified by interview observations and document review.

1. Entry level jobs require less reading.
2. Non-English speakers can hold entry level jobs with a lower grade level reading or no reading at all, i.e., stenopools where only "copy" work is done.
3. Strategies for coping when one does not read--ask for verbal directions.
4. High level jobs require reading such as:
   - Formal letters
   - Company documents
   - Computer printouts
5. Most frequently read materals are:
   - Formal letters--proofreading
   - Memos
   - Computer printouts
   - Work manuals
   - Mail--addresses, names
   - Forms
   - Telephone directories
   - Schedules

6. Clerk typists, other than stenographer-pool employees, must be able to read on a secondary level.

7. There is often a distinct difference between what supervisors perceive as reading responsibilities and what actually is read (usually their perception is more complex than what exists).

3.2 Test Development for Literacy Skills Among Clerk-Typists

The observations and interviews carried out during the intial stages of the project found the position clerk-typist to be highly diversified from job-to-job and within each job. Amid this diversity, some basic reading skills common to every job contacted were identified. The basic reading skills isolated were the following: Comprehension (this included interpretation, main ideas, factual information, and comprehension of schedules and forms), alphabetizing, vocabulary, grammar, and punctuation. These basic skills became components of the test designed for office workers in conjunction with the project. Below is a brief chronological outline of the test development and data collection activities. Following the timeline, is a presentation of each section of the literacy test designed (Appendix A), the rationale for the sections, and the subsequent revisions of each section with explanations for the revisions.

Reading Test Development--A Cronological Outline

1. First draft of the test was developed. It was reviewed/ revised by the research team. Contacts were made with 8 high school students who volunteered to participate in the pilot of the test.

2. High school students were given the test; the test was scored. The research team met to review the test results; again, revisions were agreed on, and contacts were made with 40 vocational education students who volunteered to participate in the first data collecting phase of the project.

3. The testing of the 40 vocational education students continued and was completed; the tests were scored. The research team met to review the test reulsts, revisions were agreed on and contacts were initiated with 80 employees in the position of clerk-typist who volunteered to participate in the data collection phase of the test.

4. Data collection with the 80 clerk-typists began.

5. Data collection with the 80 clerk-typists was completed; the tests were scored. The research team met to review the test results. The writing of the research project report was planned.

The Development of Each Section in the Literacy Test

Section I. Comprehension

Reading materials used commonly on the job were gathered during the observations and interviews. The reading materials were analyzed for level of difficulty. An average level of 11-11.5 grade was determined as most common to each position.[1] An understanding of the reading material was found to be generally necessary for the employees to function effectively in their positions. With these findings in mind, Section I was written.

The polysyllabic vocabulary used in the test of Section I was verified against the publication "The Literacy Requirements of a Secretary on the Job and in a Vocational Training Program."[2] This publication lists the most commonly used words in the clerical vocabulary. The letter format of the section was chosen because it was found to be a writing and reading format familiar to all clerk-typists we contacted.

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1. The Fry Readability Formula was used to obtain the reading of the materials; at this time we found no formulas designed to test technical writing. Edward B. Fry, Fry Readability Scale (Jamestown publishers, Providence, Rhode Island, 1978).

2. A. J. Moe, R. T. Rush, R. L. Storlies, The Literacy Requirements of a Secretary on the Job and in a Vocational Training Program (Purdue University, Dept. of Education, Lafayette, Indiana, November 1979).

The reading level was kept at 11.0-11.5 in agreement with the average reading level obtained with the analysis of reading materials common to the clerk-typists surveyed.[3] The questions asked of the reading text were constructed to deal with several kinds of comprehension skills, i.e., interpretive, main idea, factual, inferential, critical thought. Throughout the field testing of the test the next of the reading passage remained the same. The questions asked pertaining to the reading remained unaltered.

3. Fry, Loc. Cit.

TEST SAMPLE

Section I. Comprehension

In this section you will be tested on your reading comprehension (your understanding of Passage A). Please read Passage A silently then answer the questions following by circling the answer which most fully satisfies the question.

Passage A

Dear Applicant:

We received your resquest regarding information concerning the job opening we are attempting to fill. The position will necessitate that you know how to perform the basic math functions. You must be able to type at least sixty words per minute. Your reading skills must be twelfth grade level or higher. You must demonstrate your public relations skills in person as well as on the telephone. These requirements are basic necessities for performing well in this particular position.

We will train you to use a calculator, adding machine, and any other equipment necessary to your work in our office. Because we will be taking time to train someone we would appreciate it if you would carefully consider whether or not you are qualified for the position. If you desire to make this kind of work a career, and if you are willing to work fifty hours a week for the first month of training please call us. We will immediately set up an appointment for you. We will also initiate the paper work necessary for your application to be processed.

If you have any further questions concerning the qualifivcations for this position please do make contact with us by May 31.

1. What had the applicant requested?

   A. Information about a secretarial job
   B. Information about a job opening
   C. Information about a job opening they had filled
   D. Information about a job opening they were trying to fill.

Questions 2 thru 6 refer to Passage A found on page 1.

2. What are the basic necessities for doing well on this job?

   A. The requirements for the job are the basic necessities.
   B. Math skill, reading ability, and personality are the basic necessities.
   C. Personal relations skills, math, reading ability, and typing are the basic necessities.
   D. Reading skills, math, typing, and shorthand skills are the basic necessities.

X1CMV/N

3. It is necessary for the applicant to know how to operate office machines to be considered for the job?

   A. Yes
   B. No
   C. Information not given in the passage

4. Is the applicant qualified?

   A. Yes
   B. No
   C. Information not given in the passage

5. If the applicant is able to type 60 words per minute, can perform the basic math functions, reads on the second grade level, and has good personal relations skills is s/he qualified for the job?

   A. Yes
   B. No

Please indicate below <u>why</u> you answered yes or no.

_____

_____

_____

6. Which sentence best summarizes the main idea of Passage A?

   A. The position has many qualifications.
   B. The position will require a commitment to the work.
   C. The position is available to a qualified person willing to train and build a career around the work.
   D. The position has many qualifications which will exclude many applicants less committed to the work.

Section II. Alphabetical Order

Clerk-typists commonly worked with directories, catalogs, manuals, and journals. These materials were generally organized alphabetically. Efficient and effective use of these materials required a thorough knowledge of alphabetical order.

The words were taken from a literacy requirement book for secretaries.[4] The alphabetical order section was originally four groups of five words to be alphabetized independently by group. After the pilot with eight high school students, it was determined that the test needed to be shortened without damaging its effectiveness in determining a person's ability with alphabetical order. It was then reduced to two groups of five words, chosen specially because they require a thorough alphabetical order knowledge--alphabetization from first letters to the last letters. No other changes were made in this section.

TEST SAMPLE

Section II. Alphabetical Order

Number the following sets of words in their correct alphabetical order, 1 corresponding to the word nearest the beginning of the alphabet.

	A.		B.
____	particles	____	separately
____	partners	____	separate
____	participant	____	sending
____	participate	____	sentences
____	partial	____	sentence

4. A. J. Moe, R. T. Rush, R. L. Storlie, The Literacy Requirements of a Secretary on the Job and in a Vocational Training Program (Purdue University, Dept. of Educ., Lafayette, Indiana, November 1979).

Section III. Punctuation and Grammar

The project team agreed to include this section after carefully noting that a knowledge of grammar and punctuation are an integral part of proofreading, a skill often used in the cler-typist position. This section was written after the first draft was presented to the research team. So, technically, it was a part of the first revision.

The punctuation section was designed to include all of the major punctuation forms. The original section was revised after the pilot test with the eight high school students. The revision dealt only with the item assessing knowledge of apostrophe usage. This section remained the same through the remainder of the testing done.

The grammar section tests for knowledge of complete sentences and sentence fragments. The initial version contained three items. This section was expanded in the second revision to include five sentences--with two incomplete sentences and three complete. The expansion was done to more fully insure that the person being tested understood what a complete sentence was and did not circle the correct sentence arbitrarily. With two answers necessary for a perfect score in this section it was less likely that a person might arbitrarily score perfectly. This section remained in this form throughout the remainder of the testing.

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TEST SAMPLE

Section III. Grammar and Punctuation

1. In the following sentences, please fill in the proper punctuation.

   A. Joan will get her degree but not until she passes the class.

   B. We are going to see the doctor his office is downtown.

   C. Today is your day off said Mr. Garcia.

   D. Fred Williams who works across town will see us today.

   E. Each workers paycheck must be signed.

   F. Please send the following five bottles of correction fluid six staplers twelve ballpoint pens and a copying machine.

2. Circle the incomplete sentences or sentence fragments.

   A. Derek's Pawn Shop will allow you two weeks.

   B. In the following section of this report, Dr. Patrick's research will be analyzed.

   C. The idea that work should be pursued as a calling.

   D. It is very important that you work well with the people in the office.

   E. The correct answer, the first two on the second line.

X1CMV/N

Section IV. Vocabulary

All of the vocabulary words in this section were selected from among the words listed as the most common words found in the technical vocabulary of a secretary in the book by Alden J. Moe.[5] Correct definition words were formulated by consulting Webster's New Collegiate Dictionary and The Oxford English Dictionary. Even so, this section underwent a more extensive revision that the other sections did. The pilot test indicated difficulty with over 50% of the questions, 5 out of 20. These were revised to include clearer differences between choices. The field testing with 40 vocational education students revealed additional difficulties. The decision was made to eliminate the two items that were proving to be the most difficult, leaving a total of eight items in this section. Additional revision went into making more marked differences between the definition choices offered. In the eventual use of the test, with eighty employees, one item still presented ambiguity to the test participants, item number 4, seeking the definition of the word "qualifications." The item was judged to have problems and in the scoring this item was discarded.

5. A. J. Moe, R. T. Rush, R. L. Storlie, The Literacy Requirements of a Secretary on the Job and in a Vocational Training Program (Purdue University, Dept. of Educ., Lafayette, Indiana, November 1979).

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TEST SAMPLE

Section IV. Vocabulary

Circle the most correct definition of each word listed.

1. Demonstrate
   - A. lead
   - (B.) show
   - C. act
   - D. evil

2. Necessitate
   - A. negate
   - (B.) cause
   - C. revive
   - D. lead

3. Initiate
   - (A.) begin
   - B. letter
   - C. center
   - D. end

4. Qualifications
   - A. promises
   - (B.) essentials
   - C. credits
   - D. efforts

5. Designate
   - A. picture
   - (B.) name
   - C. plan
   - D. lead

6. Objective
   - A. an idea
   - B. a method
   - C. a thing
   - (D.) an aim

7. Recommendation
   - (A.) act of advising
   - B. act of requiring
   - C. answer
   - D. act of showing

8. Resources
   - (A.) reserve supply
   - B. a second reply
   - C. do again
   - D. reserve food

X1CMV/N

Section V. Schedules and Forms--Reading Comprehension

One of the regular reading formats common to all of the clerk-typists contacted dealt with forms and schedules. The section was designed to test precision and comprehension in the reading of schedules and forms. This proved to be one of the more challening sections of the test. Deviations in the schedule were questioned as well as consistencies. The test participants had more difficulty dealing with the deviations from the regular pattern in the schedule. The second revision resulted in the inclusion of a clarifying note at the end of the schedule to further assist the test participants.

Form A (a Sample Form to be filled out by the subject) had key words underlined to emphasize their importance. The testing results indicated a specific difficulty with questions 6 and 7. Several correct approaches to answering the questions were used by the test participants. All of the appropriate approaches were counted as correct.

TEST SAMPLE

Section V. Schedules and Forms--Reading Comprehension

Review Schedule A below and circle the correct answers to the questions listed after the schedule on page 6.

Schedule A

*Regular Working Schedule for Employee Unit 5
Week of June 26-29, 1985

Monday		Tuesday		Wednesday		Thursday	
Alpan	6-5	Alpan	6-5	Alpan	6-5	Alpan	6-5
Bond	5-4	Bond	5-4	Bond	5-4	Bond	5-4
Chávez	6-5	Chávez	6-5	Chávez	6-5	Chávez	6-5
Fiaui	5-4	Fiaui	5-4	Fiaui	5-4	Fiaui	5-4
Gutierres	5-4	Gutierres	5-4	Gutierres	5-4	Gutierres	5-4
Jones	6-5	Jones	6-5	Jones	6-5	Jones	6-5
Pérez	6-5	Pérez	6-5	Pérez	6-5	Valdes	6-5
Wong	5-4	Wong	5-4	Wong	5-4	Wong	5-4

*Regularly ten hours per day, 4 days per week, two shifts running a day, 6AM to 5PM and 5PM to 4AM, machinery maintenance daily 4AM to 6AM, lunch and dinner breaks are to be taken for one hour after four full hours of work. Any deviation from regular schedule is due to employee request for time off.

Now that you have reviewed Schedule A thoroughly, answer the questions about Schedule A found on page 6.

X1CMV/N

TEST SAMPLE (continued)

These questions are about Schedule A on page 5. Please circle the correct answer to each question.

1. Which days of the week does Perez not work this week?
   A. Friday, Saturday, Sunday
   B. Thursday, Friday, Saturday, Sunday
   C. Thursday, Saturday, Sunday
   D. None of the above

2. How many hours of work per day do these employees regularly have?
   A. 8
   B. 40
   C. 10
   D. none of the above

3. What hours did Chavez work on Tuesday?
   A. 5-4
   B. 6-5
   C. 5-2
   D. none of the above

4. Did Valdez work this week?
   A. Yes
   B. No
   C. Information not given

Fill in Form A below by referring to Schedule A found on page 5. Act as though your name is Perez as you fill out Form A.

Form A Employees: Please read this form carefully and print the information asked for within the blanks provided.

1. Last Name _____
2. Unit Number _____ 3. Week of _____
4. Regular Hours Per Day _____ 5. Regular Hours Per Week _____
6. Days Regularly Worked _____
7. Days Worked This Week _____
8. Total Hours Worked This Week _____

X1CMV/N

Sections VI and VII. Interpretation and Main Idea

The last two sections of the clerk-typist test were taken directly from the minimum competency items included in the test for the auto mechanics in this research project. These two sections were included for two reasons. First, the two kills tested play an integral part in testing reading comprehension. Secondly, the sections were included to provide a common ground for comparison of the responsesz from auto mechanics and clerk-typists.

The section on interpretation required the application of the test participants' comprehension of a main passage to two different circumstances.

The main idea passage required the reading and comprehension of a three paragraph passage and the selection of the best statement of the main idea of that passage.

These two sections were not revised, but remained identical to those in the auto mechanic's test. We refer you to the description of that test for further detail concerning the development of these two sections, Sections V and VI.

TEST SAMPLE

Section VI. Interpretation

Read the safety warning below and answer the questions that follow.

Bleeding

Until medical help arrives, place a thick pad of clean cloth or bandage directly over wound and press firmly to control blood flow. Hold in place with strong bandage, neckties, etc., taking care not to make tie so tight as to prevent circulation. In case of injuries to the groin, armpit or neck, where ties cannot be used, control blood flow with finger or hand pressure. Raise the bleeding part higher than the rest of the body, unless bones are broken. If injury is extensive, treat for shock.

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1. Someone has fallen on a broken bottle and the cut on his leg is bleeding heavily. You cut a thick cloth over the wound and tie it in place with a shirt sleeve. According to the warning above, you are acting:

   A. Correctly
   B. Incorrectly

2. Your friend has cut his neck in a motorcycle accident. You raise his neck with a cushion and press your hand firmly over the wound. According to the warning above, you are acting:

   A. Correctly
   B. Incorrectly

X1CMV/N

TEST SAMPLE (continued)

Section VII. Main Idea

Directions: Read the following paragraphs and answer the question about the main idea.

Learning To Read

Teaching people to read can be a difficult and complex process if the basics of the skill are not approached properly. Instead of worrying about what people don't know, you should concentrate on what they have already learned through everyday experiences.

Imagine yourself in the place of those who do not read and make a list of all the words they encounter every day. Begin in the bathroom, washing up for breakfast. There are words on the toothpaste tube and even the bar of soap. Then move into the kitchen and look around. People notice brand names and product names like "cereal," "eggs," and "milk." Continuing throughout the day, you will discover other words--stop signs, names of streets, and names of cars.

We are constantly surrounded by a great basic vocabulary. It's easier to help people read these familiar words and then move on to new words and experiences.

Which one of the following is the best statement of the main idea of the article you just read?

A. People notice brand and product names and encounter words on toothpaste tubes and bars of soap.

B. When associated with everyday experiences, reading becomes an easily acquired skill.

C. If taught correctly, people can learn to read quite quickly.

D. Learning to read is far more difficult than learning to talk.

X1CMV/N

3.3 Site and Sample Selection

Observations and Interviews

Site selection for the interviews and site observations was done by referring to the phone directories (yellow pages) and through previous contacts with people in business. Interviews and observations were carried out with clerk-typists in large offices (13+ employees), and small offices (2-12 employees). All offices in the study were in the Los Angeles Metropolitan area.

Pilot Test

The sample selection for the pilot test was from the immediate vicinity of UCLA. Contacts were made with high school students known to a member of the research team. Those students volunteered and then recruited some additional students for the pilot test.

Information was gathered from their performance on the test as well as their remarks concerning overall clarity, perceived ifficulty, etc.

Field Testing with Vocational Education Students

Contacts wre made with numerous educational institutions where people were trained as clerk-typists. Three of the institutions contacted expressed an interest in our research and a desire to participate in the administration of the exam to any students who would volunteer. One institution was a community college (CC), one an occupational training center (OTC), and one a skills development center (SDC). The occupational training center and the skills center had a higher percentage of minority students enrolled than the city college, although minorities were present in all three institutions (a more detailed ethnic distribution will be given in the analysis section).

Testing students in three different kinds of educational facilities provided us with a broad basis of comparison in regard to age, ethnic background, and educational background.

Data Collection with Employed Clerk-Typists

When the time arrived for initiating contacts with employers regarding the final data collecting phase those employers who had participated in phase one were contacted first. Two of these firms accepted the invitation to participate in the segment of the study which tested the literacy skills of its workers, although different persons took part in each phase.

SITES OF OFFICE PERSONNEL STUDY--FINAL PHASE

Salient characteristics of sites selected. Below are descriptions of the offices chosen for the testing, following the development of the tests for specific literacy skills. We have provided some detail of the major characteristics of the participating offices (shops, agencies) in order to place the resulting data in the context of the office variations. For each agency, the descriptions attempt to establish the following features:

- Major functions of the particular office.
- The size of the firm in number of employees.
- The ratio of men to women.
- The organization of the clerical staff.
- The ethnic/linguistic distribution of the employees.
- The spread of ages of the staff members.
- The range of salaries.

Commerical Transporation Company (CTC)* (COMTRANS)

CTC had its intermodal traffic department housed in a small building located on the railroad yeard near downtown Los Angeles. This office employed approximately 65 clerks in varying shifts, twenty-four hours a day. The majority of the clerks were male. There was a diverse ethnic population with approximately 50% of the population being members of some minority group. The age range was diverse as well, from 19 to 58 years.

The office was responsible for the smooth flow of CTC truck traffic carrying large "containers" to be transferred by rail. Therefore, some clerks had business to transact in the office and in the general area surrounding the office as well (checking in trucks and containers). Other clerks worked strictly in the office. They all were involved in clerical skills (filing, letters, etc.), telephone calls, and typing; but, there was some diversity from one position to the next, depending on what facet of the intermodal operation they were responsible for.

Public Communications Company (PCC) (PUBCOM)

This office was located in the PCC central headquarters in Santa Monica. (West Side of the Los Angeles area). This particular office of PCC dealt with some legal transactions, public relations, and incoming complaints of customers. There were approximately 12 clerk-typists employed in this office with a high level of clerical expertise. All of the clerical positions were staffed by female employess at the time of the data collection. The minority population was approximately 30% of

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*to respect anonymity the names of the agencies have been changed.

the total number of clerk-typists. The age ranges is from 21 to 35 years old.

The basic clerical stills were common to all the clerical positions, but there was diversity in the nature of the materials that each position dealth with. For example, some of the clerk-typists worked primarily with complaints and repairs, while some deal strictly with secretarial functions for an administrator, etc.

Federal Service Agency (FSA) (FEDSERV)

The Federal Service Agency's office was located in West Los Angeles. The office was open to the public from 9 to 5 p.m. for processing federal service claims in person. They processed claims by mail as well. Recently, shortly before the time of the study this office had seen a reduction in clerica staff when several clerical personnel were promoted to positions in another branch office located in the same building. At the time of data collection the positions had not been filled, consequently the clerical personnel were doubly busy with their work and the work of some absent personnel.

There were six clerical positions in the office. The ethnic background of the clerical personnel then was approximately 30% minority. The age range was 23 to 45 years.

From job to job the responsibilities were fairly consistent, with less diversity than some of the other offices where employees were tested. The main function of the clerical personnel in this office was to accurately define the claims being made, to do the paper work and calculations of money claimed which would allow payment to the individual after the federal office has verified the accuracy of the claims submitted. Filing, typing, reading preprinted forms, reading reference books, and

reading incoming mail are some of the basic on-the-job tasks these employees had to deal with. Telephone calls were very limited due to a centralized answering and referral service.

THE STATE EMPLOYMENT DEPARTMENT (S.E.D.) (STED)

The State Employment Department (S.E.D.) was a state agency which offered its local community a number of employment related services. These services included employment and unemployment services such as: employment counseling, employment referrals, arrangement of interviews, employment placement, referrals to training programs, and unemployment insurance. All of these sources were considered important components to the provision of adequate and complete employment services. The S.E.D. also included a (WIN) program which provides the same aforementioned employment services but focuses exclusively on welfare recipients.

The S.E.D. was a fairly large office divided into 4 units which included: Administrative, Employment Services, Unemployment, and the WIN program. The efficiency of the unemployment unit in the office has priority, because if people did not get their money they would not come back to look for jobs. The clerical/secretarial personnel in the S.E.D. consisted of one Manager Secretary, four full-time clerks, and a large number of part-time Office Assistants. The Manager Secretary was also the Attendance Clerk, which meant she had a wide variety of job tasks. The Manager Secretary was responsible for the Manager's mail, dictation and typing, but also must take care of all the paper work for hiring, separating (those moved to other departments), attendance, and all the tasks related to payroll. Three clerks worked with unemployment insurance

exclusively and expected to look and keep up files, take care of mail, and other job related tasks. Of the three clerks, one of them was a Control clerk, which means she attended to the mail pay; and another was an Overpayment Clerk who advised claimants when they have been overpaid. The fourth full-time Clerk worked exclusively with the employment services unit and reponsible for any clerical/secretarial task within his/her unit. The Part-time Office Assistants simply answered phone calls and took care of light typing, especially when the Manager Secretary had an overflow of work.

The Clerical/Secretarial Personnel:

1.	Sex:	99% women, only 1 man
2.	Age range:	Apprix. 20-44
*3.	Ethnicity:	90% Hispanic/Mexican, 10% Asian/White
4.	Pay scale:	$904 - $1060 a month

The Top Executive Positons:

*1.	Ethnicity:	9 Hispanic - all Mexican
		5 White
		1 Asian

PARENTS FOR COMMUNITY ADVOCACY (PACA)

PACA, as a community agency, was committed to promote, expose and assist in equal educational opportunities for Chicano children. The agency's commitment stemed from concerned citizens as well as the agency's

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*This office was located in East Los Angeles. It was probably imperative that most of the staff be proficiently bilingual in Spanish and English.

County and Federal funding which was allocated for the purpose aforementioned. PACA was receiving Title VIII - Bilingual Education monies at the time of the study. The PACA administration, Executive and Project Directors had decided to use two strategies to help Chicano children in education. One of the strategies focuses on working with the parents and family unit, which is considered the child's initial exposure to learning. The second strategy used by PACA is working with teachers and administrators, teaching them how to work and use parents as a resource to enchance the children's learning. PACA was at the time, working on two projects. One of the projects not only familiarizes parents with school problems, but also encourages them to participate in helping to resolve and helping to alleviate the problems. The second project was basically concentrating on bilingual parent communication.

The PACA office was small and included only six on its staff: one Executive Director, one Project Director, three Counselors, and one Secretary. The Executive Director managed the entire office, directed and worked on one of the projects, which includes writing the project proposal beforehand and writing up the report afterwards. The Project Director did the same for the second project. The three Counselors could be called Parent Trainers, because they conducted classes on a variety of topics, e.g., the school structure, drugs, adolescence, Title I, Title IV how to read testing scores, and how to deal with particular problems at school, such as suspension. Parents were also familiarized with the school personnel and legal aspects such as Court mandates. Many times the Directors were also involved in similar interaction with parents. The office Secretary was simply responsible for all clerical/secretarial tasks necessary. She took care of the mail, kept files, answered phones, etc.

The Personnel

1. Sex — 5 Women and 1 Man
2. Ethnicity: — All Mexican
3. Age: — Administrative and Secretary, 25-35 (all women); Counselors, 40-50 (2 women and 1 man)

EAST LOS ANGELES UNION (ELAU)
COMMUNITY RESEARCH GROUP (CRG)

In 1972, East Los Angeles Union (ELAU) became one of the 49 non-profit locally based Community Development Corporations (CDCs) receiving federal assistance to participate in this national experiment. It was ELAU's task to develop and implement an economic revitalization strategy in partnership with the 350,000 residents (80% Hispanic) of greater East Los Angeles. Within the ELAU organization, CRG was originally conceived as the economic research and planning division to assess the socio-economic needs of the community, identify areas of economic opportunity, and obtain public and private resources to implement ELAU economic development projects. CRG possessed planning and research capability in the many facets of socioeconomic development including transportation, housing, human services, legislation, and all economic activity such as commerical and industrial development, labor trends, etc. CRG's success in planning and research was based upon its ability to effectively include the participation of the public and private sectors in conjunction with community residents.

At the time of the study, The CRG administrative personnel was composed of the following members: one President and two Vice-President

they in turn have hired an X number of skilled personnel to work on Communit projects, including: Project Directors, Marketing Specialists, Analysts, Researchers, etc. At the time, were four on the secretarial staff and one receptionist. The receptionist basically greeted people, answered phones, and did very light typing. Two of the secretaries were known as Mag Operators, who did most of the typing for the entire office. They were responsible for typing for the Project Directors, for monitoring supply distribution, for maintaining their own filing system and for relieving the receptionist if necessary. One of the last two secretaries was the Executive Secretary to the two Vice-Presidents. She was responsible for screening their calls, taking dictation, doing their filing, mail, typing, etc., and acquainting herself with all accounting procedures and paperwork. The last and most important staff member is the Executive Secretary to the President, who performed the same tasks as the aforementioned Executive Secretary. The Executive Secretary to the President was also the Supervisor of the clerical/ secretarial staff as well as Administrative Assistant, which meant she contributed to the organization and administration of the entire office.

The CRG's Secretarial Staff:

1. Sex All Women
2. Age: 25 is the average age
3. Ethnicity: All Mexican

All administrators were men; 2 Chicanos, 1 Pakistani; the President was Chicano.

IMMIGRATION ASSISTANCE, INC.

The Immigration Assistance, Inc. was a non-profit, voluntary agency accredited by the Immigration and Naturalization Service (INS) to help in the reunification of documentable families of Los Angeles by assisting them with the intricate and complex immigration procedures of this country. DOCUMENTABLE applied to those persons or families living in the United States in Violation of U.S. immigrations laws, who were prevented from exercising rights and privileges of U.S. citizens and (legal) resident aliens because of INS delays in administrative processing of their applications for normalization status. The Immigration Center was federally funded administered by the City of Los Angeles, which meant limiting these services only to low income residents of the City of Los Angeles.

The Center was then staffed as follows: one Attorney, three Counselors, one Executive Secretary, one Clerk Typist, and one Public Relations Officer. The Counselors aided and counseled their clients throughout the immigration process, using the Attorney for reference when legal advice was necessary. The Public Relations Officer's title was pretty much self-explanatory, but he also wrote up proposals for grant monies. The Clerk Typist was also the Receptionist, performing all tasks required of her through that title. She also took care of the mail and was responsible for typing immigration forms passed on to her by the Counselors. The Executive Secretary performed a variety of tasks including the scheduling of all appointments, sending all notices to clients, taking dictation, attending Board Meetings and taking minutes, bookkeeping--paying all bills, typing briefs and other important letters, i.e., letters to

Judges. The Executive Secretary was the right-hand person for the Attorney.

The Personnel:

1. Sex — 5 Women, 2 Men. The 2 Men at top positions - (Attorney and P.R. person)
2. Age Range: — 25-760
3. Ethnicity: — 1 Anglo, 6 Hispanic. (The Attorney was anglo.

THE COUNTY HOUSING AGENCY (COHOUS)

The County Housing Agency of Los Angeles continued to seek and develop an adequate supply of decent and affordable housing for the citizens of Los Angeles County. This public agency was providing essential housing for thousands of low-income residents of Los Angeles County. At the time over seven thousand such households in the country were receiving assistance from the Housing Agency through either the Section 8 or Section 23 subsidy programs or by occupancy in one of their conventional projects. Althought the Housing Agency had aided proportionately many more needy citizens, the demand for low-cost housing had also increased at a higher rate. The Housing Agency was attempting to achieve real alleviaton of the community's housing problem by investigating every possible method, preserving existing housing, and devleoping all housing programs available.

The Housing Agency included two buildings: One was completely occupied by part of the Housing Assistance Payments Program (HAPP) the second building housed the other part of the HAPP and five other departments, which included: (1) Personnel (2) Housing Management Business, (3) Development,

and most importantly, the Executive office. The Executive Office included: four Executives, three Analysts, two Consultants, and five Clerical/Secretarial personnel. The Executive Office was organized such that three of the Clerical/Secretarial personnel worked almost exclusively with three of the Executives--The Executive Director, the Deputy Executive Director, and Public Information Officer. The other two secretaries worked with the Analysts. The fourth Executive--Special Assistant to the Executive Director--mainly worked by himself doing research and keeping himself informed. When finished with a project, Consulants occasionally passed on typing tasks to the Clerical/ Secretarial personnel. It is important to note that there was a mutual cooperation among the Clerical/ Secretarial personnel. Whenever there was an overload of work falling upon any one of the Clerical/Secretarial personnel, everyone helped out.

There was a wide variety of tasks which could be associated with the Clerical/Secretarial personnel of the Housing Agency, but not all of the tasks were necessarily performed by all members of the personnel. Here some of the tasks observed were: typing, shorthand, filing, proofreading, light budgeting and bookkeeping, mail, answering phones, and making travel arrangements. The Clerical/Secretarial personnel also had to be able to answer questions about general policy and procedures of the Housing Agency. Editing and writing letters were tasks exclusively performed by executive secretaries--and the Analysts.

The Clerical/Secretarial Personnel:

80 Clerical/Secretarial personnel--approximately 250 total workers

50% Hispanic - mostly all Mexican

25% Black

24% White

1% Asian

Average age: 25

99.5% Women

Income range: $9,500 - $18,000 a year

Several of the Executive Secretaries-and analysts were women; 3 out of 5 Housing Project Managers were women. Majority of Department Executives were men.

THE GARCIA COMPREHENSIVE HEALTH CENTER (GARCIA)

The Garcia Comprehensive Health Center provided quality health care for families in the East Los Angeles community with a trained bilingual staff sensitive to their needs. The Center's goal was to provide preventive and ambulatory sick services. The Center was not a hospital or an emergency care facility. The Comprehensive Health Center Council, composed of community representatives, was in constant communication with this Center's administration in order to insure that health services met the needs of the community. The Health Center Administration was aware of the financial strain many people were experiencing; but, they were required to charge for medical services by a County Ordinance. Arrangements could be made to have patients interviewed by a Patient Admitting Worker, who would pay for all or part of health care. The Center was then providing these general services: Alcohol Rehabilitation

Clinic (ARC), Environmental Sanitation, Public Health Education, Public Health Investigator, MIC Maternal-Infant Care Project, Mental Health, Public Health Nutrition, Public Health Nusring, Public Social Work, Senior Citizen Clinic, Podiatry, Cardiology Clinic, Registrar - Birth Certificate, Burial Permit, etc., Volunteer Program and WIC - Women Infant/Children Program.

The Medical Records staff included 12 entry position clerical workers who worked with an intricate detailed filing chart system which serviced the entire Comprehensive Health Center. Everyone on the clerical staff was required to know how to file, make a chart, attach medical correspondence--lab slips, X-rays, etc. The staff had to also know about the terminal digit, color code and the vertical integration of charts. The Medical Records Supervisor has divided the tasks in the chart room into the following sections. (1) Trouble Section, (2) Teleauto-writer Section, (3) Clearing Desk Section, and (4) Clinic Clerk Section. The three persons in the Trouble Section were basically responsible for the searching of misplaced charts. The charts might be misfiled, they might be in a clinic or perhaps they migyt have been sent to another clinic, or possibly they were non-existent. The worker in this section had to locate the missing file or make up a chart depending on the case. These staff workers were expected to be familiar with the entire Health Center system in order to anticipate where charts may be, if misplaced. Because the workers in the Trouble Section must have contact with the entire Center, it was important that they had good rapport with the Center's personnel. The three workers in the Teleautowriter Section worked mainly in identifying those charts requested for immediate use through the Teleautowriter machine. They also did chart delivery and chart pick up. The two persons in the Clearing Desk Section kept track of all charts requested, received, pulled and relogged (when chart is

not sent back to the clinic, but rather sent to another clinic or office). The four persons in the Clinic Clerk Section took care of filing all charts from previous clinic day, tally how many charts troubled, charts received, pulled and quested, correspondence received, charts transferred in and out, from and to other clinics, etc. All staff was mutually cooperative.

The Medical Record's Clerical Staff:

1. Sex: 10 Women and 2 Men
2. Age range: 18-56, majority in their early 20's
3. Ethnicity: 10 Hispanic and 2 Asian

The Supervisor, in addition to supervising the Chart Room, also supervised Stenographic Services, which dealt with medical summaries, pregnancy verification, work statements, insurance and disability statements. She/he had to also be aware of Central Records, the appointment desk and the Audit Department, where charts were sometimes coded.

3.3 ANALYSES OF DATA

Mean Scores on Literacy Test Battery. The protocols from each of the sites (agencies) in the study were scored, preserving the tabulation for each sub-test in the battery. Table 3.1 displays the mean scores for each agency by subtest. The sub-tests were intended to investigate the degree of competence in particular English language literacy skills by the office worker taking the test. Each agency was assigned a code name and a group number for data analyses reference. There were 8 groups, with an unequal number of subjects, for a combined total of 92 persons in the study of literacy skills among office workers.

Differences between agencies. The analyses of differences in the performance on the literacy test performance by the workers in the study were obtained by an ANOVA. Table 3.2 shows the spread of the scores. With each agency identified by its group number and code designation, we see that the employees of Public Communications Company (PUB. COM) scored the highest (94.17348), while those working at the Garcia Comprehensive Health Center (GARCIA) received the lowest mean scores, 58.41975. The ANOVA yielded an $F=4.995$ for differences between groups, 7 D.F., resulting in a significance value of $p<.0001$.

Table 3. Mean Scores on Subtests, by Agency

LITERARCY SKILL	READING COMP.	ALPHA A	ALPHA B	PUNC.	GRAMMAR	VOCAB-ULARY	SCHED-ULES	FORM	INTER-PRETATION	MAIN IDEA	GROUP MEAN
AGENCY											
COMTRANS (Group 1)	84.99 (40)	73.50 (40)	86.00 (40)	54.57 (40)	72.81 (40)	85.71 (39)	85.47 (39)	85.26 (39)	78.21 (39)	82.05 (39)	77.70 (40)
PUBCOM (Group 2)	95.83 (8)	92.50 (8)	100.00 (8)	80.19 (8)	87.50 (8)	98.21 (8)	100.00 (8)	100.00 (8)	87.50 (8)	100.00 (8)	94.17 (8)
FEDSERV (Group 3)	77.78	86.67 (3)	73.33 (3)	80.55 (3)	75.00 (3)	80.95 (3)	100.00 (3)	66.67 (3)	83.33 (3)	66.67 (3)	79.09 (3)
GARC (Group 4)	65.38	50.77 (13)	56.94 (13)	42.31 (13)	72.92 (12)	48.35 (13)	69.23 (13)	50.00 (13)	57.69 (13)	76.92 (13)	58.42 (13)
SMBUS (Group 5)	86.11	80.00 (6)	100.00 (6)	40.28 (6)	65.28 (6)	60.00 (5)	93.33 (5)	95.00 (5)	80.00 (5)	75.00 (4)	68.63 (6)
COHOUS (Group 6)	88.10	71.43 (7)	100.00 (7)	57.14 (7)	71.43 (7)	83.67 (7)	95.24 (7)	91.07 (7)	64.29 (7)	85.71 (7)	80.81 (7)
ELAU (Group 7)	97.22	83.33 (6)	100.00 (6)	73.61 (6)	75.00 (6)	90.47 (6)	88.89 (6)	81.26 (6)	100.00 (6)	66.67 (6)	85.64 (6)
STED (Group 8)	90.74	100.00 (9)	88.89 (9)	68.52 (9)	71.88 (8)	77.78 (9)	81.48 (9)	80.56 (9)	72.22 (9)	88.89 (9)	81.20 (9)
TOTAL POPULATION	84.60 (92)	75.87 (92)	85.87 (92)	57.72 (92)	73.66 (90)	79.21 (90)	85.93 (90)	81.11 (90)	76.11 (90)	82.02 (89)	76.96 (92)

Table 3

Mean Scores Literacy Test by Agency

A N A L Y S I S O F V A R I A N C E

VARIABLE	CODE	VALUE LABEL	SUM	MEAN	STD DEV	SUM OF SQ	N
GROUP	1	COM. TRANS	3108.12319	77.70308	17.07758	113741.07705	(40)
GROUP	2	PUB. COM	753.38787	94.17348	2.93384	602.51999	(8)
GROUP	3	FEDSERVE	237.28193	79.09398	10.69117	2286.02223	(3)
GROUP	4	GARCIA	759.45674	58.41975	15.12370	27447.14519	(13)
GROUP	5	SMALLBUS	411.76685	68.62781	24.81316	30784.65436	(6)
GROUP	6	COHOUS	565.65386	80.80769	9.05569	4920.32711	(7)
GROUP	7	ELAU	513.86790	85.64465	11.51421	6628.85150	(6)
GROUP	8	STED	730.76377	81.19597	8.64685	5981.44482	(9)
WITHIN GROUP TOTAL			7080.30210	76.95981	15.13401	192392.04225	(92)

A N A L Y S I S O F V A R I A N C E

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	800902.801	7	114414.686	4.995	0.0001
LINEARITY	585.062	1	585.062	0.026	0.8734
DEV. FROM LINEARITY	800317.739	6	133386.290	5.824	0.0000
	R = -0.0147		R SQUARED = 0.0002		
WITHIN GROUPS	1923920.422	84	22903.815		
	ETA = 0.5422		ETA SQUARED = 0.2939		

74

75

Differences between the East Side and West Side. The ANOVA found the high scoring group to be an agency in the West Side, the area of Los Angeles with a predominance of Anglo monolinguals, while the firm scoring the lowest was located in the East Side, (East Los Angeles), where the population was predominantly Hispanic. A two-tailed t-test was computed on the Literacy test data, Table 3.3, in order to determine if the agencies in the East Side scored consistently, significantly lower than those in West Side. The t-test found no statistically significant difference between the mean scores of the agencies located in the East Side when compared with the scores of the firms in West Side. Even though the mean scores of the business offices in the West Side had a higher range-- 77.70308 to 94.17348, than those of the East side--58.41975 to 85.64465, the t-test found the differences in means not significant.

Differences among Sub-tests. In the initial phase the study had identified literacy skills important to all office workers, and these were the skills that were being examined by the sub-tests. The next analyses was to indicate how the office personnel in the participating firms performed on these specific skills. The Scheffle Multiple Range Test was applied to the data. Table 3.4.1 shows that the skills which surfaced as being under significantly different levels of control by the subjects were Vocabulary and Form-filling. On closer look at Table 3.1 one notes that such a result appears to have been influenced by the low scores of one agency (GARCIA of the East Side), where the

Table 3.2. T-test (two-tailed), East side by West side, on sub-tests of Literacy

GROUP 1 - EASTSIDE
GROUP 2 - EASTWEST

1 = East
2 = West

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE: T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE: T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
READCMP												
GROUP 1	41	87.4200	23.149	3.729	1.90	0.133	-0.84	90	0.194	-0.82	75.69	0.416
GROUP 2	51	86.2673	17.044	2.670								
ALPHAA												
GROUP 1	41	79.1463	31.022	4.451	1.13	0.699	-0.46	90	0.646	-0.46	87.73	0.644
GROUP 2	51	77.2549	32.998	4.619								
ALPHAB												
GROUP 1	41	81.4024	34.121	5.329	1.14	0.660	-0.51	90	0.609	-0.51	83.25	0.612
GROUP 2	51	87.4510	31.990	4.480								
PUNC												
GROUP 1	41	54.8776	25.136	3.926	1.06	0.834	-1.01	90	0.315	-1.01	84.67	0.317
GROUP 2	51	60.1190	24.194	3.418								
GRAM												
GROUP 1	39	71.5813	18.698	3.026	1.93	0.066	-0.92	88	0.359	-0.92	80.92	0.360
GROUP 2	51	75.2451	18.456	2.584								
VOCAB												
GROUP 1	40	80.9275	25.887	4.092	1.84	0.127	-3.78	88	0.000	-3.69	73.42	0.000
GROUP 2	50	87.4200	20.538	2.905								
SCHED												
GROUP 1	40	82.5000	25.021	3.956	1.09	0.758	-1.19	88	0.237	-1.18	81.90	0.240
GROUP 2	50	86.8600	23.914	3.382								
PENM												
GROUP 1	40	79.3750	26.547	4.197	1.48	0.196	-2.36	88	0.020	-2.33	75.15	0.021
GROUP 2	50	86.5000	21.847	3.090								
IPTELP												
GROUP 1	40	71.2500	29.738	4.698	1.24	0.479	-1.47	88	0.146	-1.46	79.36	0.151
GROUP 2	50	80.0000	26.726	3.780								
MAINIDEA												
GROUP 1	39	77.9872	40.987	6.563	1.22	0.566	-0.54	87	0.587	-0.54	77.94	0.592
GROUP 2	50	84.0000	37.033	5.237								

Table 3.4.1, Duncan Procedure, Sub-test by group

```
    VARIABLE  READCOMP
 BY VARIABLE  GROUP

MULTIPLE RANGE TEST

DUNCAN PROCEDURE
RANGES FOR THE 0.050 LEVEL -

             2.82   2.96   3.05   3.12   3.18   3.23   3.27
0THE RANGES ABOVE ARE TABLE RANGES.  THE VALUE ACTUALLY COMPARED WITH MEAN(J)-MEAN(I) IS..
      14.2036 * RANGE * SQRT((1/N(I)) + 1/N(J))
- HOMOGENEOUS SUBSETS   (SUBSETS OF GROUPS, WHOSE HIGHEST AND LOWEST MEANS DO NOT DIFFER BY MORE THAN THE SHORTEST
                        SIGNIFICANT RANGE FOR A SUBSET OF THAT SIZE)

SUBSET  1      Variable  Reading comprehension, by variable group

GROUP       GRP04      GRP03      GRP01      GRP05
MEAN        65.3838    77.7767    84.9909    86.1116

SUBSET  2

GROUP       GRP03      GRP01      GRP05      GRP06      GRP08      GRP02      GRP07
MEAN        77.7767    84.9909    86.1116    88.0957    90.7399    95.8325    97.2216

    VARIABLE  ALPHAA
 BY VARIABLE  GROUP

MULTIPLE RANGE TEST

DUNCAN PROCEDURE
RANGES FOR THE 0.050 LEVEL -

             2.82   2.96   3.05   3.12   3.18   3.23   3.27
0THE RANGES ABOVE ARE TABLE RANGES.  THE VALUE ACTUALLY COMPARED WITH MEAN(J)-MEAN(I) IS..
      21.3304 * RANGE * SQRT((1/N(I)) + 1/N(J))
- HOMOGENEOUS SUBSETS   (SUBSETS OF GROUPS, WHOSE HIGHEST AND LOWEST MEANS DO NOT DIFFER BY MORE THAN THE SHORTEST
                        SIGNIFICANT RANGE FOR A SUBSET OF THAT SIZE)

SUBSET  1      Alpha A

GROUP       GRP04      GRP06      GRP01      GRP05      GRP07      GRP03
MEAN        50.7692    71.4286    73.5000    80.0000    83.3333    86.6667

SUBSET  2

GROUP       GRP06      GRP01      GRP05      GRP07      GRP03      GRP02      GRP08
MEAN        71.4286    73.5000    80.0000    83.3333    86.6667    92.5000    100.0000

    VARIABLE  ALPHAB
 BY VARIABLE  GROUP

MULTIPLE RANGE TEST

DUNCAN PROCEDURE
RANGES FOR THE 0.050 LEVEL -

             2.82   2.96   3.05   3.12   3.18   3.23   3.27
0THE RANGES ABOVE ARE TABLE RANGES.  THE VALUE ACTUALLY COMPARED WITH MEAN(J)-MEAN(I) IS..
      21.5038 * RANGE * SQRT((1/N(I)) + 1/N(J))
- HOMOGENEOUS SUBSETS   (SUBSETS OF GROUPS, WHOSE HIGHEST AND LOWEST MEANS DO NOT DIFFER BY MORE THAN THE SHORTEST
                        SIGNIFICANT RANGE FOR A SUBSET OF THAT SIZE)

SUBSET  1

GROUP       GRP04      GRP03
MEAN        50.9231    73.3333

SUBSET  2

GROUP       GRP03      GRP01      GRP08      GRP02      GRP05      GRP06      GRP07
MEAN        73.3333    86.0000    86.4889    100.0000   100.0000   100.0000   100.0000
```

Table 3.4.2 Duncan Procedure, sub-test by group

```
     VARIABLE  PUNC
  BY VARIABLE  GROUP

MULTIPLE RANGE TEST

DUNCAN PROCEDURE
RANGES FOR THE 0.050 LEVEL -

          2.82  2.96  3.05  3.12  3.18  3.23  3.27
OTHE RANGES ABOVE ARE TABLE RANGES.  THE VALUE ACTUALLY COMPARED WITH MEAN(J)-MEAN(I) IS..
       15.8440 * RANGE * SQRT(1/N(I) + 1/N(J))
-  HOMOGENEOUS SUBSETS   (SUBSETS OF GROUPS, WHOSE HIGHEST AND LOWEST MEANS DO NOT DIFFER BY MORE THAN THE SHORTEST
                         SIGNIFICANT RANGE FOR A SUBSET OF THAT SIZE)

SUBSET  1

GROUP       GRP05       GRP04       GRP01       GRP06
MEAN        40.2767     42.3076     54.5729     57.1428
- - - - - - - - - - - - - - - - - - - - - - - - - - - -

SUBSET  2

GROUP       GRP01       GRP06       GRP08       GRP07       GRP02       GRP03
MEAN        54.5729     57.1428     68.5177     73.6099     80.1887     80.5467
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

     VARIABLE  VOCAB
  BY VARIABLE  GROUP

MULTIPLE RANGE TEST

DUNCAN PROCEDURE
RANGES FOR THE 0.050 LEVEL -

          2.82  2.96  3.06  3.13  3.18  3.23  3.27
OTHE RANGES ABOVE ARE TABLE RANGES.  THE VALUE ACTUALLY COMPARED WITH MEAN(J)-MEAN(I) IS..
       14.5372 * RANGE * SQRT(1/N(I) + 1/N(J))
-  HOMOGENEOUS SUBSETS   (SUBSETS OF GROUPS, WHOSE HIGHEST AND LOWEST MEANS DO NOT DIFFER BY MORE THAN THE SHORTEST
                         SIGNIFICANT RANGE FOR A SUBSET OF THAT SIZE)

SUBSET  1

GROUP       GRP04       GRP05
MEAN        48.3515     59.9999
- - - - - - - - - - - - - - - -

SUBSET  2

GROUP       GRP05       GRP08       GRP03       GRP06
MEAN        59.9999     77.7755     80.9500     83.6714
- - - - - - - - - - - - - - - - - - - - - - - - - - - -

SUBSET  3

GROUP       GRP08       GRP03       GRP06       GRP01       GRP07       GRP02
MEAN        77.7755     80.9500     83.6714     85.7138     90.4750     98.2137
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
1GRAMMAR TEST
```

VARIABLE FORM
BY VARIABLE GROUP

MULTIPLE RANGE TEST

DUNCAN PROCEDURE
RANGES FOR THE 0.050 LEVEL -

2.82 2.96 3.06 3.13 3.18 3.23 3.27

OTHE RANGES ABOVE ARE TABLE RANGES. THE VALUE ACTUALLY COMPARED WITH MEAN(J)-MEAN(I) IS..
14.7631 * RANGE * SQRT(1/N(I) + 1/N(J))

- HOMOGENEOUS SUBSETS (SUBSETS OF GROUPS, WHOSE HIGHEST AND LOWEST MEANS DO NOT DIFFER BY MORE THAN THE SHORTEST SIGNIFICANT RANGE FOR A SUBSET OF THAT SIZE)

SUBSET 1

GROUP	GRP04	GRP03
MEAN	50.0000	66.6667

SUBSET 2

GROUP	GRP03	GRP08	GRP07	GRP01	GRP06	GRP05
MEAN	66.6667	80.5555	81.2500	85.2564	91.0714	95.0000

SUBSET 3

GROUP	GRP08	GRP07	GRP01	GRP06	GRP05	GRP02
MEAN	80.5555	81.2500	85.2564	91.0714	95.0000	100.0000

1GRAMMAR TEST

differences on the two sub-tests were some 50 points between the GARCIA scores and those of the highest scorer (PUB. COM of the West Side).

Subsequently, the Duncan Procedure was computed as another way of looking at skill levels of the various agencies on the sub-tests. Tables 3.4.2 to 3.4.4 show the results of this statistical process. The Duncan Procedure resulted in agreement with the Scheffle Multiple Range Test that Vocabulary and Form-filling were skills with differential levels of competence among the subjects of the study. Additionally, the Duncan Procedure found reading comprehension and punctuation as causing significant (0.050) levels of difference.

Ethnic Distribution in sample. The policy of the firms that participated in the study was that of inviting all of their employees to take part. In the West Side we found 8 persons of Black and Asian ethnicity in our sample. Although the numbers in the groups other than the Hispanic and the Anglo are too small to say anything with confidence, the figures are provided here, as being of interest to stimulate subsequent studies investigating Literacy skills across several ethnic groups, Table 3.5.

Discussion. A surprising finding was the extremes in performance on the literacy skills tests by the office workers in the East side (Hispanic) agencies. Group 4 (GARCIA) performed consistenly lower than any of the other firms in the study, yet their neighboring Group 7 (ELAU) frequently vied for highest

Table 3

Mean Scores Literacy Test by Ethnicity

A N A L Y S I S O F V A R I A N C E

VARIABLE	CODE	VALUE LABEL	SUM	MEAN	STD DEV	SUM OF SQ	N
ETHNIC	1	HISPANIC	3258.97603	72.42169	18.28923	147178.25600	(45)
ETHNIC	2	BLACK	381.44985	76.28997	12.11077	5866.82981	(5)
ETHNIC	3	ASIAN	256.90291	85.63430	9.60107	1843.60972	(3)
ETHNIC	4	ANGLO	2529.99348	84.33312	13.34738	51664.21685	(30)
ETHNIC	5	OTHER	252.07893	84.02631	9.18681	1687.94844	(3)
WITHIN GROUP TOTAL			6679.40120	77.66746	16.03395	208240.86082	(86)

A N A L Y S I S O F V A R I A N C E

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	SIG.
BETWEEN GROUPS	289244.802	4	72311.200	2.813	0.0306
LINEARITY	275716.008	1	275216.008	10.725	0.0016
DEV. FROM LINEARITY	13528.794	3	2509.598	0.175	0.9128
	R = -0.3410		R SQUARED = 0.1163		
WITHIN GROUPS	2082408.608	81	25708.748		
	ETA = 0.3492		ETA SQUARED = 0.1220		

scores with Group 2 (PUB.COM), which had an Anglo population. Additionally, Group 2 had a literacy entry examination among its employment procedures, which means that the subjects from that office had passed previous literacy skills screening.

The skills which appeared to have differing levels of control among the subjects of the study were not those bridging school minimum competency tests with those developed for the specific employment settings. The sub-tests adapted from state minimum competency tests were those measuring ability to determine main idea and reading interpretation. For the office workers in this study, the variance in on-the-job reading performance which could be accounted by the reading skills on competency tests was identified to be 25%.

Of the literacy skills assessed by this study, Punctuation seems to have been problematic for most of the participating office workers. The punctuation sub-test scored lower than any of the other sub-tests for 6 out of the 8 groups in this part of the research.

The data on the performance by office workers on each of the skills studied will be discussed separately in future reports.

4.1 Summary of the research

We were suprised to find such a wide range of work opportunities for auto mechanics and office clerical workers. For auto mechanics, the greatest number of jobs were found to be at the entry level. For office workers there seemed to be a need for additional employees at both small and large firms.[1]

Literacy demands for auto mechanics in small shops were found to be minimal for entry positions. In contrast, the large public agencies, such as the Post Office, and county government garages this study found, required reading as part of an entry test when applying for a position. It was reported, also, that often the person who does the best in reading on the application examination is not the best mechanic.

For office workers the need for literacy skills was found to be basic to their employment, although few of the small shops used formal examinations as part of the employment process. The offices that employ large numbers of workers, especially those in the West side of Los Angeles, frequently optained their employees from the State Employment Department offices, which in turn had given the applicants literacy and office skills examinations. When the applicant was applying directly, the large offices also had screening exams.

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[1] Other studies have recently also identified the high demand for secretaries and other business office workers. Attention is called especially to Gentry, L. Entry-Level Occupations and Major Employers in Southern California. TN 2-82/11. SWRL Southwest Laboratory For Educational Research and Development, Alamitos, California; The New York Times, "Young Job-Hunters' Best Bet Is in Office Work, Study Says," May 1980, referring to a study released by the U.S. Labor Department, May 27, 1980; The Santa Monica Evening Outlook, "Shortage of secretaries pushes salaries higher," April 25, 1980, referring to a study by Olsten Corp., New York.

Instrumentation

The competency tests were developed after a review of competency tests used throughout the United States. The review showed that schools were using tow kinds of competency tests in reading--one was a generalized reading comprehension test, and the other was a functional reading test. Our instruments included both types of items. Performance on the competencey tests developed for this study were correlated positively with student performance on the local competency exams.

For the development of the job reading task tests, several stages were followed. Interviews were conducted in large and small shops regarding reading demands. The reading material in the garages and offices of the interviewees were examined. Next, research assistants conducted all-day observations (the 8-hour work day was observed) to capture the actual reading instances conducted by employees of both work fields. The observations included non-obtrusive measures, such as noting the smudge marks on the specifications and parts lists sections of the mechanics' manuals. Our observers collected job order forms and other reports.

The reading observed was classified regarding purpose, method, frequency and criticality.

Linguistic content analysis revealed that the principal reading material in auto mechanics manuals and most clerical offices was written at an eleventh or twelfth grade level (Forcast Formula and Fry Read bility Formula[1]).

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[1] Forcast Formula, described in Methodologies for Determining Reading Requirements of Military Occupational Specialists, Human Resources Organization, Monterey, CA. 1972; Fry, E.B., Fry Readability Scale Jamestown Publishers, Providence, Rhode Island, 1978.

At this point, we wish to point out that machanics whose reading scores would not exceed third grade level can obtain the information they need from manuals written at an advanced level. In short, readability is not best determined by a linguistic analysis, but by considering the interest and experience of the reader.

Once, the data from interviews, observations and collected documents were gathered, frequency tabs were prepared. We identified the tasks that were common to the range of situations. The prototypic job reading tests, developed from the task analyses, were then submitted to a jury of mechanics and office supervisors, including some who taught high school auto mechanics and instructors of office skills at local colleges and high schools. The jury certified that the tasks were typical and representative. Content validity was established.

To summarize this statement on instrumentation, the job reading tests were constructed after applying the principle of triangularity. Interviews, observations and non-obtrusive measures, including records, confirmed the reading demands.[1] The categories of our tests for auto mechanics paralled the categories used by Sticht in his study of mechanics-in-training with the Army.[2]

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[1] Sticht, T.G.(Ed.), Reading for Working: A Functional Literacy Anthology. Human Resources Research Organization, Alexandria, Virginia, 1975.

[2] In some occasions, mechanics, especially those who were owners of the particular shop, gave exagerated reports regarding the importance of reading.

Reading to Do and Reading to Learn

A caution is in order when discussing reading and work. Job-reading tasks for auto mechanics, especially, and for office workers to a lesser degree, are not the same as job-reading taks in training programs for these vocations. The research team visited numerous schools for mechanics and office workers and found that the reading demands in the schools were higher than the demands at the work site, for the entry positions. The schools attempt to prepare the student for a greater variety of tasks than a mechanic or an office worker is likely to find on his/her first job, if it is an entry level. The reading content is necesarily broader within the classroom. Further, in the classroom the manual is a text book to be studied. On the job, few people study the manual. Instead, they use the manual to refresh their memory for different operations and above all, for looking up nonmenclature, tolerance levels, parts types, or instructional models for a task at hand.

Policy Implications

The legal issue of competency testing currently has focused on whether or not students have been given instruction relevant to the tests. A school that fails a student without having offered appropriate instruction on the content of that test is suspect. With respect to the tests we developed, these appear to be matched with instruction. Regarding the legal question, validity of competency tests, we believe that our data support the view that such tests can be valid, if properly constructed. Students who do well on tests such as ours are well-prepared for the reading tasks of auto mechanics

and office work. This is not to say that successful performance on the competency test assures good mechanics or office workers.

We found many different kinds of auto mechanics, tasks, and situations. It appears that as far as the automotive field is concerned, it would be difficult for schools to develop curriculum that would meet the special requirements for these diverse garages. Hence, our study supports the policy that employers be encouraged to train-on-site to meet the local needs.

With the case of office workers, the basic literacy needs are more finite, yet here too, there are many innovations in processing office work. Schools can incorporate the training in computer literacy, for instance, for the students who are interested in work in the business world, even at the entry levels of clerical office workers. Additionally, we recommend that firms include training programs for their existing employees on the new technology.

We view with concern the practice of agency and government screening of applicants for positions as auto mechanics, and for promotion in the their jobs, on the basis of reading ability, as judged by conventional means. We have evidence that in many instances the practice is dysfunctional. The better minority-bilingual mechanics are often non-competitive on that basis. Our position is that these individuals should receive the promotion or the employment they deserve based on their ability as mechanics.

Bilingual persons should be aware that extensive training and education, along with the ability to read, is helpful and often a prerequisite to obtaining the more scarce, higher postitions in the auto mechanic industry and in the world of business offices. However, in the auto repair industry, those bilingual persons who have acquired mechanical ability, often from instruction

by parents, relatives or friends, in situations involving modeling, can find employment in entry level positions without extensive formal training, or high reading scores from school.

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Apendices

A. Samples of materials read by Auto mechanics.

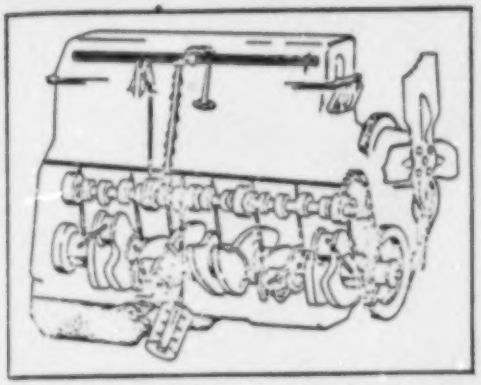
B. Samples of materials read by office workers.

C. Samples of data collection protocols, interview phase

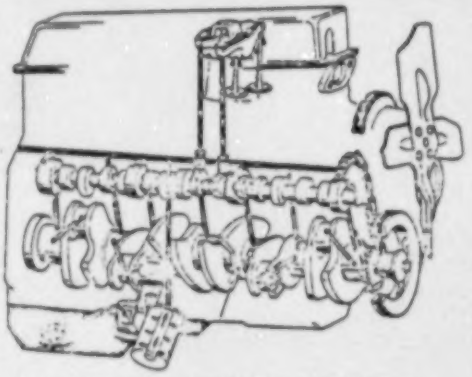
C. 1. Auto mechanics

C. 2. Office workers

A.1 Sample of material read by auto mechanics, for following sequence of operations.



Engine oiling system. 1969-72 & early 1974 6-199, 232, 258 engines



Engine oiling system. 1973, late 1974 & 1975 6-232, 258

ENGINE REPLACE

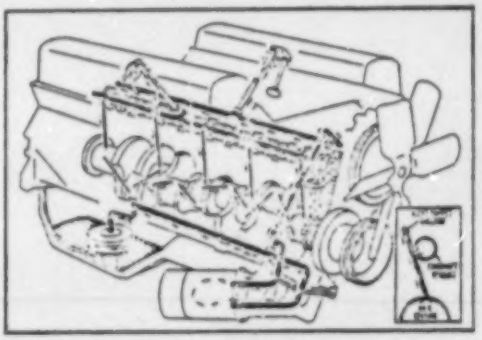
All Models

The engine and transmission is removed as an assembly as follows:

1. Disconnect battery negative and positive cables.
2. Remove hood. Mark hinges for alignment at installation.
3. Remove fender braces, if equipped.
4. Remove air cleaner.
5. Drain cooling system, crankcase and transmission.
6. Remove radiator upper air baffle, if equipped.
7. Remove power steering pump and position aside, do not disconnect hoses.
8. If equipped with A/C, discharge refrigerant system. Disconnect refrigerant lines from compressor and the receiver outlet at disconnect coupling. Then, remove condenser and receiver assembly.
9. On all models, all electrical connections and lines and hoses from engine.
10. Disconnect accelerator and transmission linkage.
11. Disconnect exhaust pipes from manifolds and the speedometer cable from transmission.
12. Support engine with suitable lifting equipment, then disconnect engine front support cushions and ground strap from engine brackets.
13. Remove rear crossmember.
14. Remove engine and transmission by pulling forward and upward. Support propeller shaft when disengaging transmission output shaft from slip joint.

CYLINDER HEAD

Tighten cylinder head bolts a little at a time in three steps in the sequence shown in the illustrations. Final tightening should be to the torque specifications listed in the Engine Tightening table.



Engine oiling system. V8-290, 304, 343, 360, 390, 401 engines

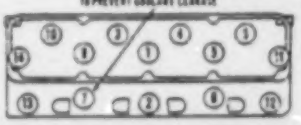


Fig. 2 Cylinder head tightening sequence on V8-290, 304, 343, 360, 390 & 401. The No. 7 bolt indicated (second from front on left bank only) must be sealed to prevent coolant leakage

V8-290, 304, 343, 360, 390, 401

The cylinder block has two locating dowels on each bank to assist in lining up and holding the cylinder head and gasket in position during installation.

IMPORTANT: The No. 7 bolt shown in Fig. 2, second from front on the left bank, must have the threads sealed to prevent coolant leakage. Permatex No. 2 or equivalent is recommended.

6-199, 6-232, 258 Engines

IMPORTANT: The cylinder head bolt located at the left front corner of the head (No. 11, Fig. 3) must have the threads sealed to prevent coolant leak-

Source: Forier. Motor Auto Repair Manual, circa 1977.

A.2. Sample of material read by auto mechanics, for seeking specifications.

Exc. Skyhawk—BUICK

ALTERNATOR & REGULATOR SPECIFICATIONS

Year	Alternator					Regulator						
				Cold Output @ 14 Volts			Field Relay			Voltage Regulator		
	Model	Rated Hot Output Amps.	Field Current 12 Volts @ 80 F.	2000 R.P.M. Amps.	5000 R.P.M. Amps.	Model	Air Gap In.	Point Gap In.	Closing Voltage	Air Gap In.	Point Gap In.	Voltage @ 125° F.
1969	1100762	37	2.2-2.6	28	35	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100761	37	2.2-2.6	28	35	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100802	55	2.2-2.6	32	50	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100691	42	2.2-2.6	28	40	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100774	55	2.2-2.6	32	50	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
1970	1100761	37	2.2-2.6	28	29	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100888	37	2.2-2.6	28	29	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100691	42	2.2-2.6	32	32	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100774	55	2.2-2.6	40	44	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100893	55	2.2-2.6	40	44	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100860	61	2.2-2.6	42	47	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
1971	1100491	—	2.2-2.6	—	—	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100905	37	2.2-2.6	28	29	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100924	55	4.0-4.5	32	44	1116384	—	—	—	—	—	13.5-14.5
	1100926	42	4.0-4.5	32	32	1116384	—	—	—	—	—	13.5-14.5
	1100931	42	2.2-2.6	28	44	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100922	—	2.2-2.6	42	47	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
	1100923	63	2.8-3.2	43	51	1119519	.015	.030	1.5-3.2	.067	.014	—
	1100943	42	2.2-2.6	28	33	1119515	.015	.030	1.5-3.2	.067	.014	13.6-14.4
1972	1102449	37	2.2-2.6	28	29	1119515	.015	.030	1.5-3.2	.067	.014	13.5-14.5
	1102443	42	2.2-2.6	28	33	1119515	.015	.030	1.5-3.2	.067	.014	13.5-14.5
	1102448	55	2.2-2.6	28	44	1119515	.015	.030	1.5-3.2	.067	.014	13.5-14.5
	1102442	55	2.2-2.6	28	44	1119515	.015	.030	1.5-3.2	.067	.014	13.5-14.5
	1102450	61	2.2-2.6	42	47	1119515	.015	.030	1.5-3.2	.067	.014	13.5-14.5
	1102447	63	2.8-3.2	43	51	1119519	.015	.030	1.5-3.2	.067	.014	13.5-14.5
1973	1100497	37	4.0-4.5	28	37	Integral	—	—	—	—	—	13.5-14.5
	1100925	63	4.0-4.5	43	58	Integral	—	—	—	—	—	12.5-14.5
	1100926	42	4.0-4.5	32	37	Integral	—	—	—	—	—	13.5-14.5
	1100946	55	4.0-4.5	40	50	Integral	—	—	—	—	—	13.5-14.5
	1100947	37	4.0-4.5	28	32	Integral	—	—	—	—	—	13.5-14.5
	1100948	61	4.0-4.5	46	55	Integral	—	—	—	—	—	12.5-14.5
	1101018	80	4.0-4.5	60	74	Integral	—	—	—	—	—	13.5-14.5
1974	1100497	37	4.0-4.5	28	37	Integral	—	—	—	—	—	13.5-14.5
	1100925	63	4.0-4.5	43	58	Integral	—	—	—	—	—	13.5-14.5
	1100926	42	4.0-4.5	32	37	Integral	—	—	—	—	—	13.5-14.5
	1100946	55	4.0-4.5	—	50	Integral	—	—	—	—	—	13.5-14.5
	1100947	37	4.0-4.5	28	32	Integral	—	—	—	—	—	13.5-14.5
	1100948	61	4.0-4.5	46	55	Integral	—	—	—	—	—	13.5-14.5
	1101018	80	4.0-4.5	—	74	Integral	—	—	—	—	—	—
1975	1101016	80	4.4-4.9	—	80	Integral	—	—	—	—	—	—
	1101034	80	4.4-4.9	—	80	Integral	—	—	—	—	—	—
	1101031	53	4.4-4.9	—	80	Integral	—	—	—	—	—	13.6-14.2
	1102388	37	4.0-4.5	—	37	Integral	—	—	—	—	—	13.6-14.2
	1102389	42	4.0-4.5	—	45	Integral	—	—	—	—	—	13.6-14.2
	1102390	55	4.0-4.5	—	58	Integral	—	—	—	—	—	13.6-14.2
	1102391	61	4.0-4.5	—	61	Integral	—	—	—	—	—	—
	1102392	63	4.0-4.5	—	63	Integral	—	—	—	—	—	13.6-14.2
	1102394	37	4.0-4.5	—	37	Integral	—	—	—	—	—	—
	1102399	37	4.0-4.5	—	37	Integral	—	—	—	—	—	—
	1102400	42	4.0-4.5	—	42	Integral	—	—	—	—	—	—

Continued

1-51

Source: Forier, L.C. (ed.), Motor Auto Repair Manual. Montebello, Ca. Motor Manuals, Mike Kantor Publishers. (for 1969-76 American built cars.)

A.3 Sample of materials read by auto mechanics, for parts information and sequence.

3. If drill does not enter inner hole, loosen two switch mounting screws and slide switch body as required to allow drill to enter inner hole. Tighten screws and remove drill.

HORN SOUNDER & STEERING WHEEL
1968-76

CAUTION: On vehicles equipped with an Air Cushion Restraint System, turn ignition switch to "Lock," disconnect battery ground cable and tape end, thereby deactivating system. Also, on these vehicles, it is necessary to remove the drivers cushion module before removing steering wheel. With tool J-24628-2, remove the module to steering wheel screws, lift module and disconnect horn wire. Then, with tool J-24628-3, disconnect module wire connector from slip ring.

1. Remove horn cap or actuator bar.
2. On 1975-76 models, remove steering wheel nut retainer.
3. On all models, back off nut until flush with top of steering shaft.
4. Use a suitable puller to remove wheel.

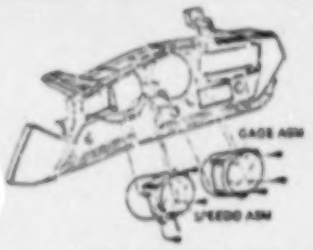


Fig. 7 Speedometer & tachometer assembly, 1973-76 Century & Regal

INSTRUMENT CLUSTER

CAUTION: On vehicles equipped with an Air Cushion Restraint System, turn ignition switch to "Lock," disconnect battery ground cable and tape end, thereby deactivating system.

1975-76 Full Size

1. Disconnect battery ground cable.
2. Remove instrument cluster bezel and lens.
3. Remove screws securing speedometer head assembly and pull assembly from housing.
4. Remove screws securing fuel gauge assembly and pull assembly from housing.
5. Reverse procedure to install.

1973-76 Apollo & Skylark

1. Disconnect battery ground cable.
2. Disconnect heater or A/C control panel from the instrument panel carrier.
3. Remove radio control knobs, bezels and nuts, leaving the radio attached to the instrument panel reinforcement.
4. Disconnect instrument panel pad from the carrier and disconnect the shift quadrant indicator cable at the shift bowl. On automatic transmission equipped vehicles remove the two nuts securing the steering column to instrument panel.
5. Remove toe plate cover and discon-

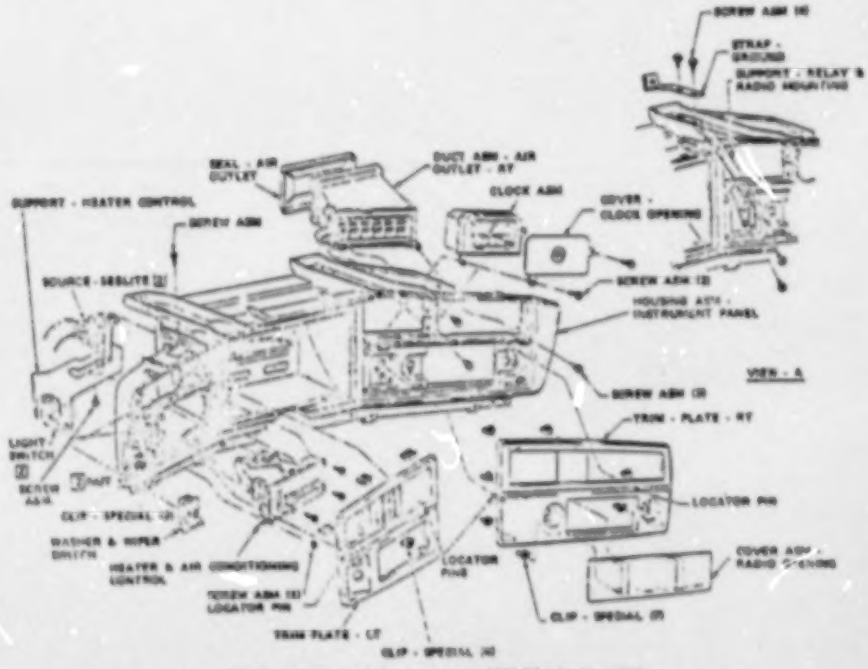


Fig. 8 Instrument cluster trim panels, 1971-72 full size models

1-59

Source: Forier, Motor Auto Repair Manual. circa 1977.

Important: Remove and Review the Instruction Sheet Before Completing this Form.

Use This Form For: Personal Life Insurance Policies (except Industrial Policies).
Personal Annuity Contracts.
Personal Health Insurance Policies.

(For Clearing & Branch Offices Operating under a Regional Service Center)
Send To ☐ Home Office — Annuity Division (For Annuity Contracts) (Use Envelope 02024)
☐ Service Center — Centre Information (For All Other Policies or Contracts) (Use Envelope 14068 S.C.)

(For Clearing & Branch Offices not Operating under a Regional Service Center)
Send to H.O. ☐ Beneficiary & Assignment Division (For P.L.I. Policies) (Use Envelope 03024)
☐ Annuity Division (For Annuity Contracts) (Use Envelope 03024)
☐ P.H.I. Change (For P.H.I. & E&P Contracts) (Use Envelope A.H. 302)

Metropolitan Life Insurance Company

Policy No. _____ Suffix

Assignment Of Interest To Insured

The undersigned hereby assigns and transfers to the Insured all the right, title, and interest of the undersigned in and to the above numbered policy, excepting any new interest conferred in the designation below.

Dated at _____ on _____ 19____

Witness _____ Signature

Witness _____ Signature

Designation Of Revocable Beneficiary By Insured

I hereby revoke any previous designations of Beneficiary and Contingent Beneficiary under the above-numbered policy and any previous elections of an Optional Mode of Settlement insofar as such designations and elections apply to the amount payable under the above-numbered policy in the event of my death.

I hereby designate the following Revocable Beneficiary, or if such Beneficiary is not living, the following Revocable Contingent Beneficiary, to receive payment of any amount due in the event of my death, in accordance with the provisions of the policy. If no Beneficiary or Contingent Beneficiary is living at my death, payment will be made to my Estate.

Revocable Beneficiary (In the case of a woman, state her own given name, middle initial if any, and present last name.)

	Name (Print)	Address	Relationship	Date of Birth
(A)				

Revocable Contingent Beneficiary (In the case of a woman, state her own given name, middle initial if any, and present last name.)

(B)				

(C) If spouse of Insured has been designated in (A), and all children (present and future — whether or not named in (B)) born of marriage of Insured and said spouse, are to be included as contingent beneficiaries, check box at right. ☐

(Note 1: If box at right is checked, all present and future children born of marriage of Insured and said spouse will be included as contingent beneficiaries. However, it is requested, for record purposes, that names and dates of birth of presently children be shown in (B).)

(Note 2: Any child NOT born of marriage of Insured and said spouse who is to be included as contingent beneficiary Must Be Named in (B).)

Payment to two or more Beneficiaries or to two or more Contingent Beneficiaries will be made in equal shares or to the survivors in equal shares or all to the last survivor.

It is understood and agreed that all decisions upon questions of fact, which are made in good faith by the Company in determining any unnamed Contingent Beneficiaries and which are based on proof by affidavit or other written evidence satisfactory to the Company, will be conclusive and will fully protect the Company in acting in reliance thereon.

All rights being vested in me, I direct that any rider in the policy which provides that all rights be vested in a person other than myself be cancelled. I also direct that, if necessary, the policy be rewritten to include a Beneficiary provision.

Note: For an Annuity Contract, references herein to Insured and policy shall be interpreted to mean Annuitant and contract and only such provisions as are consistent with the above listed annuity contract shall apply.

The name of the Insured has been changed due to ☐ Marriage ☐ Remarriage ☐ Assumption of new name ☐ Divorce ☐ Correction ☐ Other

The present name is (Print) _____
(First) (Middle Initial) (Last)

Dated at _____ on _____ 19____

Witness _____ Signature of Insured _____

Designation Of Beneficiary

To be completed by Field Representative or Clerk

District Number and Name _____ Agency _____

OB3 (1-74) Printed in U.S.A.

The ordered policy is to be returned (x) ☐ To District Office ☐ Directly by H.O. to the person named below

Address Label →

Print the Name and Address of person to whom policy is to be mailed by H.O.

Name (Print) _____

Address _____
Number Street

_____
City State Zip Code

[illegible] Do Not Read After Removal of This Form

Remove This Instruction Sheet Before Completing This Form

B. 2. Sample of material read by office workers.

Correction of age for:
Monthly or Weekly Premium Industrial Policies
New York Intermediate Policies (Suffix NY or NYD)
Account Book Ordinary Policies (Suffix M, MB, MP, or MPB)

Metropolitan Life

Use Form OB6 for correction of age on Metropolitan Series Policies and All other policies.

Send Form and Policy To

☐ **Maturities and Optional Settlements Division, Paid Up Section**
All cases where age corrections would result in a policy becoming fully paid up or maturing earlier than or within 1 year of current date. Furnish all information requested on reverse side of this form.

☐ **PLI Change Division—Account Change Unit**
Cases other than those described above. Furnish age verification record information on reverse side of this form.

	District Number and Name (Print or Stamp)	Agency No.	Pink Number	Account Book Page

Policy Number (One Number Only)			Suffix	Date of Birth: Month	Day	Year	For H. O. Use	Age Nearest—Next Birthday of Issue
								Yrs.

Name of Insured (Print)

Present residence address of insured: Number Street (Print) City or town (Print) State Zip Code

The correct date of birth of the insured is as stated above. It is requested that the age at issue of the policy be corrected to agree with this date of birth. It is understood and agreed that the amount payable under the said policy shall be such as the premiums paid thereon would have purchased at the correct age.

Change of Name of Insured

Use this space in connection with a correction of age if the Name of the Insured has been changed.

The name on the policy is .....

The present name is (Print) .....

The difference in name is due to .....

Request is hereby made that the Company enter the change of name on its records.

Indicate Where the Policy Is to Be Sent by Checking the Appropriate Box in This Margin.

Dated at ..... this ..... day of 19

Signature of Owner (if named in policy) otherwise Insured (if now age 14½ years or more; otherwise parent or guardian) (Print First Name) (Middle Initial) (Last Name) Relationship to Insured

Note—For correction of age of an applicant insured under the Applicant's Waiver of Premium Benefit change "insured" to read "applicant" in the above statement and have this form signed by the applicant.

☐ If the policy is to be sent to a person other than the insured, enter the name and address here.

Full name of the person to whom the policy is to be sent (Print)

Address: Number Street (Print) City or Town and State (Print) Zip Code

For H. O. Use

Corrected on application. Policy endorsed.	Checked by	Policy returned to ☐ District ☐ As indicated above	Forms 284-M-34-A-B Released
(Initials) (Date)	(Initials) (Date)	Date	(Initials) (Date)

9 (10-70) Printed in U.S.A.

Receipt For a Policy Submitted For Correction of Age
(Detach and hand to the policyowner)

Received from ..... Policy number .....

to be forwarded to the Home or Head Office of the Metropolitan Life Insurance Company in connection with a request for correction of age.

Signature of Agent .....

Date ..... 19 ... District .....

Note—If the policy is not returned within four weeks, please write, stating the policy number, Agent's name, District, and particulars, to the Metropolitan Life Insurance Company, at 1 Madison Avenue, New York, N. Y. 10010 (or to the Pacific Coast Head Office, at 600 Stockton Street, San Francisco, Calif. 94120 if you reside in Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, or Wyoming.

9-B (10-70) Printed in U.S.A.

Federal Truth in Lending Disclosure Statement for BankAmericard® Visa® Accounts

EFFECTIVE JUNE 1, 1977

This disclosure supersedes all prior disclosures you have received from Bank of America, if any, and is effective as of June 1, 1977.

The following disclosures regarding your BankAmericard Visa Account are given by Bank of America NT&SA ("Bank") in compliance with the Federal Truth in Lending Act.

FINANCE CHARGE:

The **FINANCE CHARGE** on your account, for each billing cycle, will be the total of:

(1) **Cash Advance Fee—2%** of the total Cash Advance transactions debited during the billing cycle; plus

(2) **Transfer and Check Service Fee—1%** ($1 minimum) of the total Transfer and Check Service transactions debited during the billing cycle; plus

(3) **Periodic Charges**—If the "Previous Balance" on your monthly statement exceeds the total of all "Payments" and "Credits" posted to your account by the "Due Date," periodic charges will be imposed, calculated in accordance with the following table by multiplying the periodic rate(s) by the corresponding portion(s) of the Average Adjusted Daily Balance. The "Average Adjusted Daily Balance" is the average of the daily balances in your account during the billing cycle, adjusted to exclude the effect of any extensions of credit, finance charge, late charge, insurance premium and all other debits posted to your account during the billing cycle. No periodic charge will be imposed unless the "Previous Balance" on your monthly statement exceeds the total of all "Payments" and "Credits" posted to your account by the Payment "Due Date" shown on your monthly statement for the previous billing cycle.

Periodic Rate (Monthly)	Corresponding Portion of Average Adjusted Daily Balance	Nominal ANNUAL PERCENTAGE RATE
1.5%	of that portion up to and including $1,500	18%
1%	of that portion over $1,500	12%

The payment "Due Date" will be shown on each monthly statement. This date will be the first banking day which is at least 25 days after the billing date.

Minimum Monthly Payment Schedule:

If Your New Balance is	Your Minimum Payment Will Be
Under $10	Amount of New Balance
$10 to $250	$10
Over $250	4% of New Balance

Late Charge:

A monthly late charge of 5% ($1.00 minimum— $5.00 maximum) will be imposed if your minimum payment is past due 15 days or more. Your minimum payment will be past due if it is not received at the Bank Card Center with which you have your account on or before the "Due Date" shown on the billing statement.

Insurance Charge:

Creditor Life and Disability Insurance is available insuring the balance of your account up to $5000. The cost of this insurance is at the rate of 24¢ per $100 of New Balance amount (less premium imposed during the billing cycle.) Specific insurance coverage details are explained in the insurance application. No insurance is provided unless you separately apply for it and a policy is issued to you.

Security Rights and Other Rights of Bank:

At its option, the Bank may declare all or any portion of the outstanding balance on your BankAmericard Visa account to be immediately due and payable without prior notice if you fail to perform any of the terms of your BankAmericard Visa Agreement or make payments as otherwise agreed, or fail to pay, when due, any other indebtedness owed to Bank or to any other person. In the event of suit, a reasonable attorney's fee is payable.

Regardless of any other agreement existing between the Bank and you or any third party, your BankAmericard Visa balance is not secured by any contractual lien. However, the balance may be secured by a banker's lien, arising under California Civil Code, Section 3054, upon any property while it is in the Bank's possession.

NOTICE: See reverse side for important information regarding your rights to dispute billing errors.

TRL 098 9.77

I have received the Truth in Lending Disclosure Statement (which includes a disclosure about my Rights to Dispute Billing Errors) which was attached to this stub prior to signing a BankAmericard Visa Cash Advance draft.

X_____ _____

Signature Date

B.4 Sample of material read by office workers

Dear Customer:

As a Pacific Telephone customer with single-line service, you now have the option to purchase some or all of the telephone equipment in your home or business.

The decision is yours. You may purchase your existing equipment or continue to pay for it on a monthly basis. You may also buy additional telephone equipment.

If you decide to buy, you have a variety of payment options from which to choose. All you need do is notify Pacific Telephone via the enclosed reply forms. If you decide to continue your present arrangement, no action is necessary.

Enclosed in this envelope is a list of telephone equipment billed to your number, a purchase price list, "reply-by-mail" forms and a Retail Installment Contract should you choose an installment payment option.

To assist you in making your decision, we have included a list of questions and answers in this brochure. There is no need to contact the Telephone Business Office or the Bell PhoneCenter. If you have any additional questions, please call us on 1 800-972-2000 between the hours of 8:30 a.m. and 5:00 p.m. Monday through Saturday.

Pacific Telephone

Appendix C

Samples of protocols from interview and observation phase.

C-1.1

COMPANY Bliss&Bothwell complete Auto Service

# of workers in the office 14

Experience of the ~~typist~~ worker (1) Full time or Part time

(2) 1 year(s) mon.

but he has worked since 1965 in this job.

I. What have you read on your job ?(today/yesterday/this week)

		Daily	Weekly	Monthly
1. "CHILTON"	(a) labor/charge guide (b) mechanical specification (Foreign & American car)			
2. "Motor Age"			X	
3.				
4.				

* CHILTON is a Company name of publisher

2. What information were you seeking ?

	Comments	Analysis of Task
Chilton 1.	Mechanical Specifications what parts are appropriate to fix	
Chilton 2.	How much is labor/charge for repairing	
Chilton 3.	How long does it take to get the parts	
motor age 4.	New information of new cars in any kind of Brand	

3. What is the most crucial task ?

Labor guide is very important because he had already known mechanical information

C-1.2

(Rick Roman

COMPANY FBI

N of workers in the office Works independently w/ approv.

Experience of the typist (1) (Full time) or Part time

(Auto mechanics) (2) Less Than 1 (year(s)) mon.

I. What have you read on your job ?(today/yesterday/this week)

	Daily	Weekly	Monthly
1. Credit Card Slips	✓		
2. Credit Card applications	✓		
3. Auto Manual (brought book) pp. 6E-2 through 6F-10	✓		
4.			

2. What information were you seeking ?

	Comments	Analysis of Task
1. Location of Parts - engine Rebuilding - H2O injectors	working on their work	
2. Sequenced Procedures - engine Rebuilding - H2O injectors		
3. "Calif. Emissions"		(Responsible for seeing that agents' cars pass test)
4.		

3. What is the most crucial task ?

Checking completed work against diagrams, procedures

C-1.3

His idea about reading in auto mechanics is "If you like car, you can do it." ~~and~~ ~~this is no special ability~~

He said "No special reading skill is required in this kind of job."

C-1.4

COMPANY PRESSICO VW

# of workers in the office 41

Experience of the ~~expert~~ Mechanic (1) Full time or (Part time)

(2) _____ year(s) 6 mon.

I. What have you read on your job ?(today/yesterday/this week)

	Daily	Weekly	Monthly
1. SERVICE MANUALS	✓		
2. TEXT BOOK IN TRAINING		✓	
3.			
4.			

2. What information were you seeking ?

Comments ~~Analysis of Task~~

1. I USE MANUALS FOR ALL DIFFERENT THINGS : FOR INSIDE BREAKS, TRANSMISSION ECT. .
2. I LOOK FOR PARTS AND PART NO. IN DIFFERENT MANUALS. FOR DIFFERENT REPAIRS AND DIFFERENT MODELS CARS.
3. TEXT BOOK IS USED FOR LEARNING PROCEDURES, AND PROBLEMS ~~Analysis~~ ANALYSIS.
4.

3. What is the most crucial task ?

Reading ability is important. (not speed)
Moreover, we don't feel difficult in ~~read~~ manuals.

C-1.5

COMPANY Mike Union 76 (employer)

# of workers in the office 4 employees

Experience of the typist (1) Full time or Part time

(2) 7 year(s) 8 mon.

I. What have you read on your job ?(today/yesterday/this week)

		Daily	Weekly	Monthly
1.	Nothing. He is Egyptian. He just has the real skills			
2.	He doesn't have the reading skills			
3.	He depends on the manager in case any need for reading the manual. But he is efficient in reading numbers			
4.				

2. What information were you seeking ?

Comments

1.

2.

3.

4.

Job description.

The job doesn't require reading except in case of having problems with cars that need repair. The Reading is usually done by the manager

3. What is the most crucial task ?
Repairing Cars and give service.

c-1.6

AUTO MECHANIC QUESTIONNAIRE - READING SKILLS REQUIRED FOR THE JOB

Garage: Rahe & Sons, 7th St. and Montana Ave., Santa Monica

Number of Mechanics: Two presently, looking for 2 more, which is the usual number there. Hard to get qualified people. Can tell if they'll work out in 1/2 hour by the way they handle the tools.

Experience and Description of Interviewee: Owner of the garage since May of 1979 (owned for 8 months), worked there 3 years prior to purchasing. Garage there since 1946. Age: 44; Ethnicity: white. Holds a degree in engineering (didn't like desk job, mechanics pays well if you "don't mind getting your hands dirty," between $30-40 thousands per year if you're good. Owns a home in Pacific Palisades (all paid for), has a wife and a Mercedes. Has worked with cars for 32 years, since he was 12. Works full-time.

1. What Have You Read On The Job Today? "You name it, technical manuals, orders, price-lists, bills." Usually refers to manuals 10-15 times each day, "better safe than sorry because it's important to have all the tune up specifications accurate or it'll hurt the car and, eventually, business." He reads the following manuals, which lined the shelves of the office by yearly volumes, which looked well used, all written in English:

   1.) Mitchell Manuals, National Service Data, 1979 Year, Domestic Cars Tune up, Mechanical Transmission, Service Repair - some skills required to read this manual:
      1.) read explanations and comprehend to apply
      2.) charts & diagrams to decipher
      3.) conversions (from Metric) and computation

   2) Chilton Motor Age, Professional Automotive Service Manual

   3) Foreign Car manuals used also, though I did not see

   He reads at least 4 hours per week at home for homework to keep up with such things as new smog devices.

   He attends classes:
   1) 2 nights each month, sponsored by IGO (Independent Garage Owners' Asso.)
   2) Will have 6 hours of class in Feb. on tune ups.

2. What Information Are You Typically Looking For? Tune up specifications: timing, dwell points (?), gape points (?)

   Must be a technician now to be a mechanic, and must be able to read. Being a mechanic is getting harder and harder now, "not a dummy job anymore."

3. How Do Boys Out Of High School Do On The Job In Regard To Reading? "Won't hire boys right out of high school, the ones that want to be mechanics can't read, none of them."

C. Desrochers 1/17/80

Nancy Scholl
Education 262B
Page 1

Interview

I interviewed the manager of a large, national company. He told me that mechanics must read specifications and materials that deal with ordering parts. He said that they read the aforementioned materials many times a day. Additionally, they have to be able to write down the work that has been done and the prices involved. Naturally, in order to do this, they must be able to read. Also, they need to be able to communicate verbally with the customer in order to determine what work needs to be done.

The manager felt that a general reading level of eighth grade combined with a knowledge of specific vocabulary would be necessary for a mechanic. If a mechanic were to do basic work only, such as brakes and shocks, he could get by with a lower level of reading. However, if the mechanic does many types of work, he needs to read well. Also, cars dating from 1971 on tend to be more complicated and would therefore require greater expertise on the part of the mechanics. Given these "facts," the large company and many others require two years of trade school beyond high school graduation. In the event that a high school graduate is hired, he is expected to attend classes to enable him to do many types of work. The manager believed that the

C-1.8

Page 2

additional schooling was entirely necessary since the work of less educated (qualified) mechanics tends to be inferior. Because of the complicated newer cars, the old style mechanic is being phased out as is the high school graduate.

COMPANY Steel Company (small office)

# of workers in the office 5

Experience of the typist (1) Full time or Part time

(2) _____ year(s) / mon.

- Steel
- Receptionist
- Room keeper
- General secretary

I. What have you read on your job ?(today/yesterday/this week)

	Daily	Weekly	Monthly
1. Invoice	✓		
2. Bills (Book keeping)	✓		
3. Letters (Hand Book of Office Skills) p 10	✓	✓	
4. office memo (Telephone messages)	✓		

How to type office letters

2. What information were you seeking ?

	Comments	Analysis of Task
1.	Book-keeping Deposit balance check	
2.	Composing letters (Form, Tell me the main points)	
3.		
4.		

3. What is the most crucial task ?

Book keeping

Answering Telephone

C-2.2

Bilingual person (Japanese American)

COMPANY Bank of America / Westwood

N of workers in the office more than 70

Experience of the typist (1) (Full time) or Part time

(2) 7 year(s) mon.

executive secretary / authorized officer

I. What have you read on your job ?(today/yesterday/this week)

	Daily	Weekly	Monthly
1. Wall street Journal	✓		
2. Customers letters	✓		
3. Bank forms			
4.			

2. What information were you seeking ?

Comments	Analysis of Task
1. What is the stock market today?	
2. How is the investment/real estate situation? especially loan rates	
3. Annual report about Banking Consultant?	
4. How to train people on their job?	

3. What is the most crucial task ?

to open real estate loan

C-2.3

COMPANY Metropolitan Life Insurance Company

# of workers in the office _____

Experience of the typist (1) Full time or Part time

(2) 4 year(s) _____ mon.

I. What have you read on your job ?(today/yesterday/this week)

	Daily	Weekly	Monthly
1. Changing policy forms	It depends on the amount of work and on changes in the policies		
2. Health maintenance catalogues			
3.			
4.			

2. What information were you seeking ?

	Comments	Analysis of Task
1.	Looking for the new changes made in the policy forms	- The job needs accurate reading and understanding - Accuracy - reading in between - Copying of the policy forms and looking in maintenance catalogues are essential
2.	Typing is needed	
3.		
4.		

3. What is the most crucial task ?

Reading the policy forms accurately, looking for the new changes and typing revisions accurately

C-2.4

COMPANY Bank of America / Westwood

N of workers in the office 70

Experience of the typist (1) ~~Full time~~ or Part time

(2) 10 year(s) mon.

Secretary for opening loans

I. What have you read on your job ?(today/yesterday/this week)

		Daily	Weekly	Monthly
1.	Wall Street Journal	✓		
2.	Bank forms	✓		
3.	SPM (Specification Manual)	✓	✓	
4.				

2. What information were you seeking ?

	Comments	Analysis of Task
1.	What is the price of Today's market	
2.	What is the appropriate time of loan (about merchant account / commercial loan)	
3.	To solve personal problems about Bank America Card / a extra personal credit	
4.	To	

3. What is the most crucial task ?

To open account according to the customer's information

C-2.5

Clerk-Typist Observation Date: 2/29/80

Office: Bureau of Census Contact: Mike Flannigan

Job: Clerk-Typist (private secretary to head of staff) Ass't Director 1980 Census

Fulltime: Yes Minority: No Age: 24 Bilingual: No

Training Experience: Secretarial School, H.S. also

Time on Job: with Fed. Gov't for over 2 years, transfer to Census this year

Activities and Ratings (activities rated always, regularly, sometimes, rarely, and never):

Reading
[illegible]-regularly
letters-regularly
memos-regularly
[illegible]-regularly
proof reading-regularly
[illegible]-regularly
dictionary-regularly
[illegible]
mail-sometimes
envelopes-regularly
forms-sometimes
manual of forms-sometimes
telephone call messages-regularly

Writing
Memos-regularly
forms-conversations with congress-sometimes
rewriting letters-regularly

Typing
letters-always

Answering/Making Calls
Sometimes to regular

Make Appointments/Cancellations
Sometimes

Talking to Colleques/Visitors
Sometimes

Most Crucial Task
typing

Most Crucial Reading Task
Reading letters and memos typed

C- 2.6

Clerk-Typist Observation Date: 2/29/80

Office: Social Security Contact: Larry Boland (Francis Nakamura in his absence)

Job: Clerk Typist (process Soc. Sec. claims) Time on Job: 2 years

Fulltime: yes Minority: No Age: 50's Bilingual: No

Training Experience: on job, training ongoing, updated regularly, can request classes if so desires

Activities and Ratings (activities rated always, regularly, sometimes, rarely, and never):

Reading
computer printouts-regularly
letters-regularly
timetable-regularly
claims manual-regularly
soc. sec. claims sheet (list)-regularly
computer terminal-regularly
file folders-regularly
incoming mail, forms-regularly

Writing
letters-regularly
claims-always

Typing
letters-regularly
forms -regularly

Answering/Making Calls
occasionally

Making Appointments
Never

Talking to Colleques and/or Visitors
sometimes

Most Crucial Task(s)
processing claims
forms accurately

Most Crucial Reading Task(s)
checking for errors in applications
filled out by people

C-2.7

Clerk-Typist Observation Date:1/23/80

Office: Student Health Center (UCLA) Contact(s):Linda Price(clerk)
Mary Bullock (super)

Job: Clerk-Typist (appt. desk)

Fulltime: Yes Minority: Yes Age:21 Bilingual: No

Training Experience: Harbor Occupational Training Center in typing, Business,Educ., math, English

Time on Job: 2 months

Activities and Ratings(activities rated always, regularly, sometimes, rarely, and never):

Reading
appointment Register-always
Referral forms-always
Appointment form -always
Student Reg. Cards.-always
Hospital Brochures-sometimes
Training Manual-rarely) (she mentioned would rather ask about procedures than read Manual)
Schedules-sometimes

Writing
Appointment register for patients-always
referral form-always

Typing
fills forms out-sometimes-must be able to read to do this

Answering and Making Telephone Calls
Regularly

Making Appointments/Cancellations
Regularly

Talking to Colleagues or Visitors
Always

Most Crucial Task(s)	Most Crucial Reading Task(s)
Making appointments and filling out appointment cards	Same